RAILWAY AGE

Should Railways Pay for Brains?

At the most critical juncture in the entire history of the railways of the United States, Senator Couzens of Michigan, chairman of the Senate committee on Interstate Commerce, asked Commissioner Eastman of the Interstate Commerce Commission, an advocate of government ownership, for a list of all railway salaries of $10,000 a year or more being paid in December, 1929, and in the early part of 1932, and Senator Couzens had them published in a government document. Why was this done at the particular time at which it was done?

The railways were in a desperate plight financially, and the commission was being severely criticized for having helped to reduce them to this plight. There was being made a universal and powerful demand for reductions of government expenditures, including government salaries and wages. Had these facts any influence on the action taken? At any rate, figures regarding the highest salaries have been broadcasted through the press and otherwise and have created upon many minds the impression that the railways have been and are paying excessive salaries and that these are largely responsible for their present troubles.

American Attitude Toward Success

Are the American people opposed to those who make the greatest successes in their particular fields being highly paid? It was recently reported in the newspapers that Charles Chaplin, the most noted comedian of the movies, recently had listed, for the purposes of taxation, securities worth, at present depreciated prices, about $7,000,000. Numerous movie actors have been reported as receiving incomes in excess of one million dollars annually. Does anybody refuse to patronize the movies because of a belief that movie actors and actresses are overpaid? Is there any political outcry against the baseball industry because Babe Ruth, for knocking home runs, is paid as much as the President of the United States, and more than most railway presidents? How much is a champion prize fighter or golf professional worth to the public as compared with a man who has brains and energy enough to perform the duties and carry the responsibilities of the chief executive of a great industrial or railroad corporation?

It is a matter of common knowledge that the automobile industry has created numerous millionaires by the payment of large salaries and bonuses to the chief officers of various manufacturing companies. Have people complained that for this reason the prices of automobiles are too high and refused to buy them? There are few individual companies representing investments and doing an amount of business equal to those of large railroad companies, and yet there are executives of steel, oil, tobacco, farm machinery, soap, chewing gum, and insurance companies and of large banks that receive as large or larger salaries as any railway executives mentioned in the list published at government expense.

What Do Railway Salaries Cost?

And now, just how large have been and are the salaries received by the higher railway officers in proportion to the importance of their duties and responsibilities? At the end of 1929 there were 56 railway officers who received salaries of $50,000 to $150,000 a year, only four of these receiving more than $100,000. Their combined salaries aggregated $4,136,000. This was 14/100 of 1 per cent of the total payroll of the railways in that year, 9/100 of 1 per cent of their total operating expenses, and less than 7/100 of 1 per cent of their total earnings. If these men had all worked for nothing it would have made no appreciable difference in the average wage the railways could have paid or the average rates per passenger-mile or per ton-mile that they could have charged. In March, 1932, there were 39 officers of the railways who were being paid $50,000 a year or more, of whom four were receiving $100,000 or more. Practically without exception their salaries had been reduced 10 per cent or more, and in many cases further reductions have been made since then. The combined annual salaries of these men, at the rate at which they were being paid in March, 1932, were $2,896,017, or less than 14/100 of 1 per cent of the total railway payroll, 9/100 of 1 per cent of the total operating expenses, and 7/100 of

1 per cent of the total earnings of 1931. The ratios of their aggregate salaries to the total payroll, operating expenses and earnings in 1931, it will be noted, were almost exactly the same as in 1929. If all these men had worked for nothing in 1931 it would have made no appreciable difference in the average wage the railways could have paid or the average rates that they could have charged.

Brains or Inefficiency?

There seems, however, to be a lack of men who are willing to work for nothing. This indisposition to work for nothing is quite strong among those of small proven ability, and can hardly be expected to be less strong among those of great proven ability. These 56 men were, in 1929, and these 39 men are, in 1932, the most outstanding leaders in one of the largest and most important industries on the face of the earth. Out of the more than 1,500,000 men employed by that industry under normal conditions, they have been the select few who, by many years of arduous study, tireless work and demonstrated ability, have won the few great prizes to which every ambitious railroad man aspires. They have won these prizes only after they have reached middle age and could reasonably expect to enjoy them for only a few years. Experience shows that the average number of years that men have held railway presidencies during the last quarter century has been only about six years. Would the public withdraw from the great railroad industry the comparatively few large prizes by which the ablest men in the industry are rewarded? If it did, it would destroy the incentive of ambitious young men to enter the industry and of men of ability to remain in it. How long would the railroad industry then be progressively, efficiently and economically managed? Each generation produces a surprisingly small number of men of real ability. It is difficult enough now, due to excessive regulation and other conditions, to get and keep enough brains in the railroad business. It would become impossible if we began acting upon the assumption that it does not need to pay for brains.

Competition for Ability

But why talk only about the largest salaries? The published figures show the average salaries in March, 1932, for all positions paying $10,000 or more in 1929. On this basis in March, 1932, there were 110 men having the titles of chairman of the board, chairman of the executive committee, president or receiver, on the Class I railways, and their salaries averaged only $28,600. There were 80 men having the title of vice-president, and their average salary was only $21,375. The total salaries being paid to these 190 men averaged about $25,500. They aggregated $4,856,100, or 23/100 of 1 per cent of the total payroll, 15/100 of 1 per cent of the total operating expenses, and 12/100 of 1 per cent of the total earnings of the railways in 1931. The public has more than 26 billion dollars invested in the railroads, many billions of which are represented by the holdings of life insurance companies, savings banks, and other institutions of the greatest importance to the public. Present conditions are the most difficult economically, that the present or any other generation of Americans has experienced, and the energy and resourcefulness of railway officers are taxed to the utmost to meet the unregulated and irresponsible competition of government-aided carriers on highways and waterways, to effect economies while maintaining service, and to prevent destruction of the public's investment in railroads.

The salaries of railway executive officers are not out of line with the compensation paid to corresponding officers of other large business concerns. They have been substantially reduced during the period of depression. Their complete abolition would produce only the most microscopic effects on the wages that could be paid and the rates that could be charged. On the other hand, if railway executive officers bear successfully the heavy responsibilities they are carrying, and perform satisfactorily the herculean tasks with which they are confronted, the results gained will be almost infinitely valuable as compared with their total salaries.

The public does not want all men of brains driven out of the railroad business. There is, however, very sharp competition for brains between the important industries of the country, and all the brains will be driven out of the railroad business if a public sentiment is created or regulation is adopted which will prevent the railroads from meeting the competition of other industries for brains.

Electrical Manufacturers Join Hands

Engineers of the General Electric Company and the Westinghouse Electric & Manufacturing Company have recently taken joint action which is most commendable.

A paper was presented at the International Electrical Congress in Paris, France, entitled "Motors and Equipment for Electric Traction in the United States" which was prepared by S. B. Cooper and N. W. Storer of the Westinghouse Company, and F. E. Case and M. R. Hanna of the General Electric Company. It includes an historical account of the development of electric traction equipment in this country and a summation of the results of this development. Although the paper deals with all types of apparatus, it includes no controversy; a thing which would have been impossible a few years ago when the battle over the relative advantages of alternating- and direct-current

apparatus was being waged. The insistence of the Pennsylvania Railroad that the two companies build identical locomotives may have had something to do with this change of attitude. A realization that the old battles retarded the progress of electrification probably has had a greater effect. The depression may have also had some influence. Whatever the cause, the situation as exemplified by the action of the authors of the paper, places the railroads in a position in which they can seek information from a manufacturer for their own specific requirements without being confused by arguments condemning the other manufacturer's product. If this attitude can be maintained, the orderly progress of electrification is assured, and such things as a standard system of power distribution are made possible.

Why Buy Locomotives?

There is a disposition on the part of some railway officers to await the return of a time when traffic increases will require an increase in motive power capacity before considering the purchase of new locomotives. Throughout the entire history of the steam railroads, until the end of the World War, no other incentive was required to keep the locomotive ownership of American railways reasonably in step with the developments in the art and with the growing needs of the service.

But will the time ever come when the volume of traffic handled by the railroads is again increasing rapidly enough so that dependence on it as a guide to locomotive buying will prevent a constantly increasing degree of obsolescence in the motive-power supply? If the experience of American railroads during the period since the close of the war is any indication of the future trend, there is no reason now to expect such conditions to return.

Accumulation of Buying Incentive

From the beginning of the Interstate Commerce Commission records to the end of the war in 1918, revenue ton-miles increased with regularity about a trend line the value of which doubled every twelve years. Since 1918 the increase represented by successive peak years was at a rate hardly more than one-seventh of that which prevailed for the preceding twenty-nine years. In 1907 all of the railroads reporting to the Interstate Commerce Commission produced 237 billion revenue ton-miles of freight service. Eleven years later, in 1918, the Class I railroads produced 405 billion revenue ton-miles, an increase of over 71 per cent. Eleven years later, in 1929, when the last peak in freight traffic was reached, the output of the Class I railroads was 447 billion revenue ton-miles, an increase of slightly more than 10 per cent. Had the same rate of increase prevailed during this eleven-year period as did during the eleven years ending in 1918, the Class I railroads would have been called upon to handle 695 billion revenue ton-miles in 1929—55 per cent more than they were actually required to handle. A projection forward of the new trend would lead to the conclusion that at least sixty or seventy years would have to elapse before as much buying incentive were accumulated as formerly accumulated in a matter of ten or twelve years.

It is, of course, a matter of doubt whether the past decade has sufficiently well established the long-time trend of the future to justify any definite predictions. One thing, however, may be stated with assurance. If the railroads are to maintain a sufficiently strong position in the transportation field to develop any appreciable increase in ton-mile volume, they cannot wait for the increase to furnish the incentive to improve their motive-power situation. While they wait, the obsolescence of their motive power will increase and their ability to maintain even their present position in competition with other transportation agencies will be reduced.

The future of the railroad industry depends upon its ability to furnish better service at lower cost. Better freight service is coming increasingly to require higher train speeds. Lower cost requires greater train loads. Modern locomotives are meeting both these requirements. Locomotives twenty, or even ten, years old cannot meet them.

A Definite Motive-Power Policy

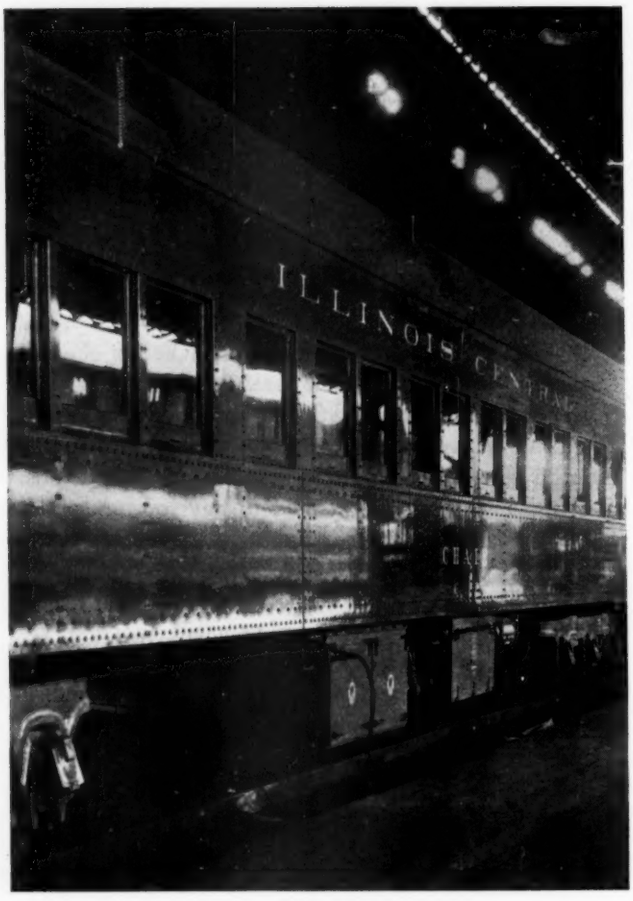
The failure to foresee and prepare for these developments twenty years ago is handicapping the railroads in meeting them now. Can anyone predict what conditions the railroads may have to meet twenty years hence and what advancements in the art of motive-power design and construction may have taken place to meet the new conditions? All experience justifies the conclusion that whatever those conditions may be, they will be different from those existing today. A definite motive-power policy based on retirement of locomotives at the end of their economic life, established today, will insure the future ability of the railroads to maintain their position as the most economical transportation system in the world, which is threatened today in part because of the lack of such a policy twenty years ago.

Indexes to Volume 92

The indexes to the latest volume of the *Railway Age*, January to June, 1932, are now ready for distribution. Subscribers who desire copies should advise the New York office, 30 Church street.

Illinois Central Air Conditions Its "Daylight Special"

Both sections of Chicago-St. Louis train are fully equipped with new Westinghouse air-cooling system



The Air-Conditioning System Operating from an Outside Power Source in the Terminal

THE Illinois Central has recently completely air conditioned both sections of its "Daylight Special" train, operating between Chicago and St. Louis (Mo.). This installation involved the cooling of 10 cars of a variety of types, including combination baggage-smoking cars, two chair cars, two diners, two library-lounge cars and two parlor-observation cars. The entire equipment for cooling and conditioning the air was furnished by the Westinghouse Electric & Manufacturing Company. It was installed, together with all necessary air ducts, distribution grilles, etc., by railroad forces at the Burnside (Chicago) shops of the Illinois Central.

In order to assure satisfactory operation under railway conditions, the Westinghouse equipment was designed throughout especially for railway service. Each of the air-conditioning units produces a cooling effect equivalent to melting six tons of ice in 24 hours. Identical equipment is provided on all cars except that those with the monitor-type roofs have insulated air ducts outside of the deck panel which give the effect of a turtle-back roof. On cars already provided with this type of roof, the insulated air ducts are installed inside of the car roof and finished to give the monitor interior effect. The combination baggage-smoking cars are provided with air ducts over the smoking compartments only.

The air-conditioning unit in each car consists of a self-contained high-speed motor-driven compressor and condenser mounted under the car body similar to the familiar battery box. A 15-kw. gear-driven axle generator furnishes power for car lighting, battery charging and for the air-conditioning system. The electric control is arranged to give constant voltage at any train speed from 20 to 90 miles an hour. A unique arrangement permits the cars to be cooled in the yard before a run by simply plugging the system into an existing alternating-current power supply at 220 or 440 volts. While this is taking place the 1,000-amp.-hr. batteries may be charged without change in the connections. When the cooled train is ready to start, the system can be switched to the direct-current power supply carried on the cars.

General Arrangement of the Equipment

The Westinghouse air-conditioning equipment is quite different from any previous installations. It consists essentially of three self-contained units, as follows: A 15-kw. gear-driven axle generator which supplies power for air conditioning, car lighting and battery charging; a 6-ton refrigerating unit complete in one box for underframe mounting; an air-conditioning unit mounted under the car roof.

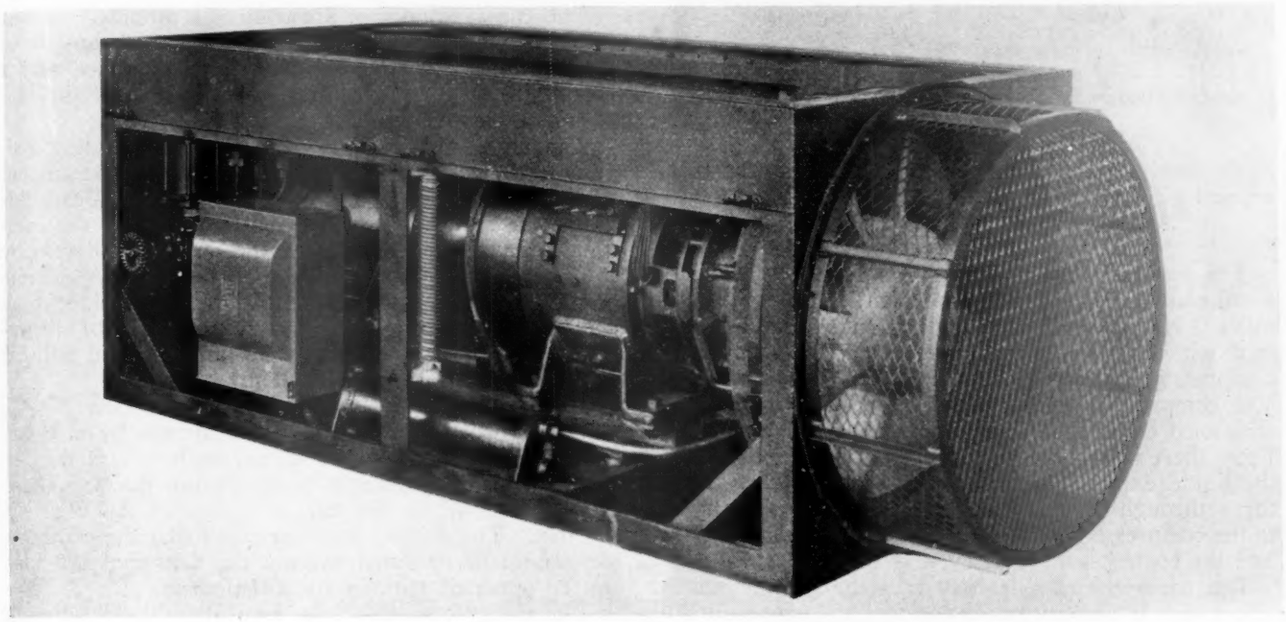
The necessary generator and motor controls are mounted in the customary lighting-control cabinets.

Interior of Illinois Central Air-Conditioned Coach—The Louvres Through Which the Conditioned Air Is Distributed Are Shown in the Clerestory Sides

Since separate lighting generators are not required, the entire system adds only about 4,500 lb. to the car weight. No floor space is taken and the system requires no replenishment of water or similar servicing.

The 15-kw. gear-driven axle generator is designed with ample capacity to provide power for air conditioning, car lighting and battery charging. The generator is mounted on the truck in essentially the same manner as a driving motor on any electrically operated multiple-unit car. This type of drive, in successful use for many years, requires a special axle, but has the advantage of completely eliminating all belts, spline shafts, universal joints, etc. The generator and drive locomotives. High-angle helical gears are used throughout to prevent noise, and within the car no gear noise can be detected. The entire gear operates in oil, providing positive lubrication. The principal objection raised to gear drives of this sort is the stress imposed on the gears when coupling trains. Tests were made with accelerometers before designing the gears, and the teeth are constructed to withstand any impact which would slip the car wheels. However, as a further protection, a flexible feature has been incorporated in the gear drive.

The ideal control for a generator to handle the loads imposed on a car should provide the full generator



Six-ton Refrigerating Unit Ready for Mounting Under the Car

are suitable for application to either four- or six-wheel trucks.

The axle generator is a totally enclosed 32-45 volt machine, designed with a large number of ventilating fins to take advantage of the train movement, thereby cooling the generator and enabling a large service capacity to be obtained from a small unit. The mechanical design of the generator follows standard railway motor practice throughout. On the commutator end of the generator shaft is located a small two-pole exciter which permits the generator always to build up with the same polarity irrespective of train direction, eliminating all brush-shifting devices which are particularly objectionable on a machine of this capacity.

A 1,000-amp.-hr. battery is used in conjunction with the generator for supplying power during the intermediate stops and at slow speeds. Tests made on the car indicate that the generator will cut in and remove the compressor load from the battery at 18 miles an hour. With the gear ratio employed on the drive, the generator is safe for continuous operation at 90 miles an hour.

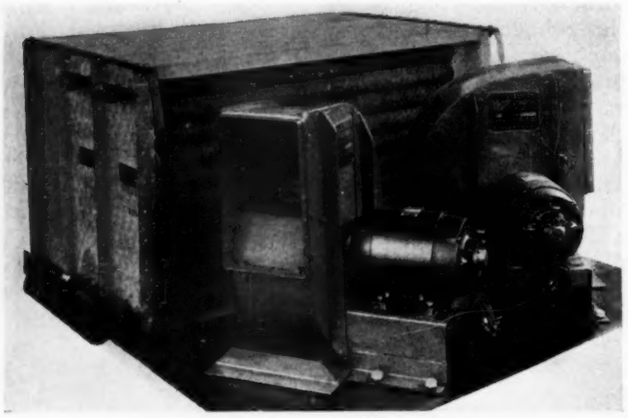
Enclosed Gear Drive for the Generator

The generator is directly driven from the axle by a gear unit to which it is mounted. The axle is pressed into the gear unit which is held onto the axle by two roller bearings. On the axle is mounted a flexible gear similar to those used on multiple-unit cars and output at all speeds from the minimum to the maximum, but at the same time give the proper taper for battery charging. The voltage should also not vary with sudden applications of compressor loads. These conditions have been met on these cars.

A regulating relay controls the exciter fields which have been divided into three sections. At low speeds, all are in series to provide maximum excitation. At intermediate speeds, part of the field is cut out, and at high speeds the differential field opposes the main field. The regulator may be adjusted for any voltage from 32 to 45 volts by means of a set screw. To give the proper taper charge, a modified constant potential system is used, employing a series resistor in the battery circuit.

The automatic switch, mounted on the same panel as the regulator, operates to connect or disconnect the generator with the battery at a voltage differential of plus or minus one-half volt, thereby causing no surges when the generator cuts in.

The entire refrigerating system is mounted under the floor in one box about the size of a large battery box. This box is designed for bolting to the car underframe and requires only two pipe connections from the cooling coils and the motor leads. The condenser is air cooled. The equipment is readily accessible from the side of the car by unlatching two doors. In a box is contained the following apparatus: Air-cooled condenser, 6-ton compressor, electric motor, condenser fan,



Air-Conditioning Unit and Motor-Driven Fans Which are Installed Under the Car Roof

liquid receiver tank, oil separator, cut-off valves, strainer, and a-c. starting switch.

Simplicity of Operation

The operation of the system is simple. By closing a small control switch, the entire plant is placed in operation. However, the ventilating fans may be operated without the refrigerating system by opening the compressor switch. The refrigerant used is Freon. The compressor pumps gas at high pressure into the air-cooled condenser, where it is condensed to a liquid. From there it goes to the cooling unit in the roof where the liquid expands to a gas and cools the car. It returns through an oil separator, which returns any oil to the compressor crank case, and the refrigerant passes into the compressor. The cycle is then repeated.

The condenser fan is bolted to the driving motor. The motor is directly connected to the compressor and all mounted on a bed plate which is carried on rubber so that no objectionable vibration is produced. The condenser is mounted in the rear of the box so that air enters at one end and goes out the rear through the condenser coils. At the end opposite the fan are three valves and the strainer. One valve shuts off the back-pressure line and one the high-pressure line. The third cuts off the strainer, enabling it to be removed without losing any refrigerant. Similarly, all the charge may be pumped into the box for any pipe repairs.

The principal feature of the unit is the high-speed compressor which develops six tons of refrigeration with a weight of only 300 lb. Operating at 1,000 r.p.m., a high efficiency is said to be obtained. The crank shaft, pistons, connecting rods, bearings, etc., are all force-lubricated by an oil pump located in the crank case. Flapper valves are used. The condenser cooling fan was especially developed by the manufacturer in its research laboratory for efficient use in this application. The fan is made entirely of aluminum.

One of the problems in air conditioning of cars is that of pre-cooling. For midnight sleepers which may be parked for several hours, the use of a battery is out of the question. Wiring yards and terminals at 32 volts is costly. Realizing this, the manufacturer designed an a-c/d-c. motor drive for the compressor which requires no more space than a standard d-c. motor.

This motor is a two-bearing machine, directly connected to the compressor. The d-c. end operates at 1,000 r.p.m., 38 volts, and rates 10 hp. totally enclosed. The a-c. end rates 15 hp. at 1,150 r.p.m., either 220 or 440 volts, 60 cycles, 3 phase. This arrangement gives operation from various types of power. For operation at slow speeds or during intermediate stops, the battery is used. For operation above 18 miles an hour, the generator furnishes power. During pre-cooling, commercial a-c. power may be used. The battery may be charged, if necessary, when the compressor is being operated from the a-c. end. By merely closing the compressor switch, the d-c. motor acts as a generator and automatically charges the battery. The a-c. feature increased the weight of the equipment about 7 per cent and provided a most flexible arrangement. This is the only motor used in the refrigerating unit.

Air-Conditioning Units

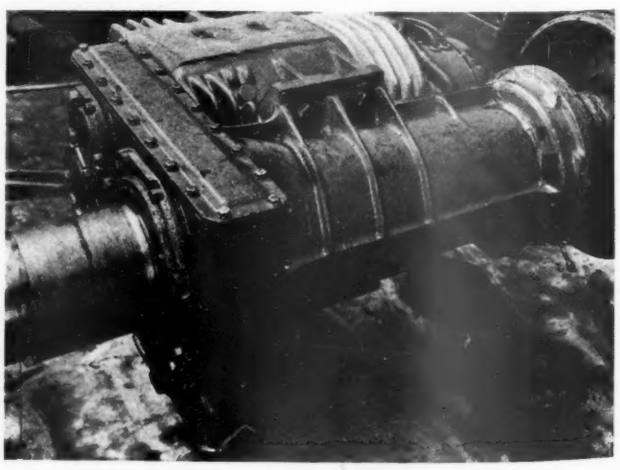
The air-conditioning apparatus is mounted in one unit located under the car roof. The unit consists of the cooling radiators, blowers, capillary tubes and a regulating valve. A heating radiator is included for winter heating of the car.

The high-pressure line from the refrigerating unit runs to the regulating valve which controls the amount of liquid to keep a constant back pressure. From this valve, the refrigerant is distributed evenly to the radiators. Air is pulled through the cooling radiators by the blowers and then delivered to the car. A definite amount of fresh air is taken from the outside at all times through filters, and a certain amount of air recirculated. No expansion valves are used and only 25 lb. of Freon are needed to fill the system.

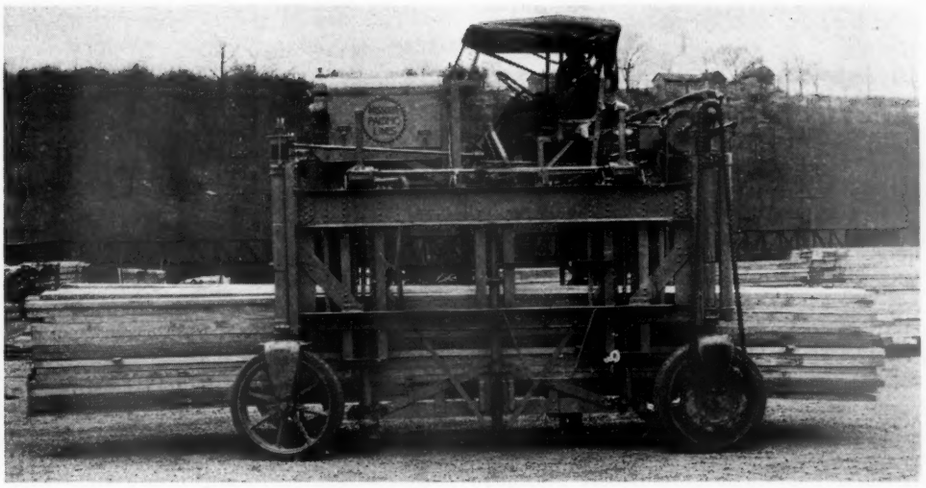
To facilitate the duct arrangement, two No. 2 Buffalo Forge fans are used, each driven by a ½-hp. motor. The fans are set at an angle of 60 deg. to eliminate any right-angle bends in the ducts. These fans deliver air to the car in excess of 2,000 cu. ft per min. The control is so arranged that the compressor cannot be operated without the fans, but the fans can be operated without the compressor.

For winter operation, the heating radiator is used. This supplements the regular heating system and tempers the fresh air supplied to the car. The air is supplied to the car by the two ducts mentioned along either side of the deck. Each duct has a cross-section of 100 sq. in. Along the ducts are louvres through which the air enters the car.

A thermostat, which may be set for any desired temperature, controls the refrigerating apparatus whether operating from the battery, the generator or a-c. power. This maintains constant temperature in the car at all times. All the air entering the car, either winter or summer passes through filters and is cleaned before the warming or cooling process.



The 15-Kw. Gear-Driven Axle Generator



A "Speed Boat" for Lumber on the Missouri Pacific

Missouri Pacific Changes Storehouse Methods*

Pay rolls cut over $100,000 by switching from divisional to centralized plan of material accounting

By L. L. Studer

District Storekeeper, Missouri Pacific, Sedalia, Mo.

BY reorganizing material accounting on a district instead of a divisional basis and consolidating clerical work incident to the accounting of shop labor and materials, the Missouri Pacific has reduced its annual pay roll more than $134,000. This saving is the result of dispensing with 84 clerical positions which would otherwise be required for the accounting work and does not include the reductions in forces which were made because of business conditions.

The stores department of the Missouri Pacific differs from similar organizations on most roads in that it not only performs the stores accounting but also prepares mechanical-department pay rolls and performs the labor accounting for the mechanical department. Previously, this work and the division accounting for line stocks were performed by 34 separate division and stores accounting organizations, each with a separate material account to maintain. Two offices now perform all the mechanical and stores accounting, each with but one material account to maintain, and two offices, each with but one material account, perform all the line stock and other division accounting. The new plan involves the elimination entirely of division accounting and the substitution of centralized accounting, embracing from 6 to 11 divisions, depending upon the location of the divisions with respect to the centralized office.

The plan eliminates the necessity of rendering invoices for material transferred between the stores or from the general to division stores on the same accounting district, with a corresponding reduction in the amount of clerical work. The work of rendering department bills or invoices in division or superintendents' offices is likewise eliminated, since the charges are made directly to the appropriate accounts. When car loads of material are shipped from the general stores to division stores, only shipping notices are now prepared instead of invoices showing the weights, prices, extensions and classification, as was done under the divisional arrangement. The detailed clerical work at both the receiving and shipping stores has been entirely eliminated.

The claim that the elimination of division or store material accounts would rob supply officers of their measuring stick of the efficiency of individual stores, and by eliminating the monthly balance sheet, would tend to increase material stocks has not been sustained by the experience under the new plan. On the contrary, material stocks have been decreased as much as 60 per cent on the Missouri Pacific since the centralization was made effective, although the merging of the material accounts had nothing to do with such decreases, which resulted, instead, from business conditions, the careful policing of material stocks and the systematic check of stock-book records, with the object of returning all inactive material units to the general stores stock.

Eliminating the individual store or division material accounts makes it impossible to determine where the discrepancies in inventories occur, and, therefore, impossible to fix the responsibility for these discrepancies, but, since annual inventories cover one year's transactions and are usually the result of incorrect accounting

* Adapted from a paper presented before the Purchases and Stores Association on June 22.

methods, or the failure to obtain material tickets for all material used, and since inventory discrepancies at best cannot be corrected except through the inventory adjustments, it was felt that the practice of maintaining division material accounts in order to fix the responsibility of such discrepancies did not justify the expense. When inventory discrepancies occur, all that can be done is to attempt an explanation and when the investigations and explanations are completed, the shortage or overage in the inventory still remains, since there is no method under any plan by which the discrepancy can be corrected other than through inventory adjustments. Thus, the only difference in the present arrangement lies in the fact that explanations are limited to one of the four district material accounts instead of being reduced to the various divisions and stores throughout the railroad. When annual inventories are made, however, the material actually inventoried is separated by divisions or stores so that the value of material stocks at each point can be compared with the previous year's inventory.

The arrangement which has been adopted on the Missouri Pacific has proved beneficial in several ways. It permits the assignment of more clerical work to each individual clerk than was possible in small division accounting offices. For example, at one division point, one timekeeper was required to maintain the time records of the 400 men employed, although this timekeeper could maintain the time records for 500 men. With the work concentrated in the centralized office, the time records of the maximum number of employees are assigned to each timekeeper, and when the forces fluctuate, the number of timekeepers is adjusted accordingly.

Centralizing the office work has also permitted the establishment of a bureau of calculating machines with operators trained in the touch system to perform all calculations. Under the division plan, there was not always a sufficient volume of work to warrant the employment of trained operators, with the result that the calculations were performed longhand, or by assigning the work to highly-rated clerks not familiar with calculating machines.

Economies have also resulted from the consolidation of reports, statements, distributions, etc. For example, in the offices of the division superintendents, it was previously necessary to prepare 17 government reports and distributions, while only two consolidated reports and distributions are now required.

General View of the Consolidated District Accounting Office at Sedalia, Mo.

The present practice has also made it possible to concentrate the typing, comptometer work, pricing, etc., in each district office and thus assign the maximum amount of each kind to each clerical position.

The work has been organized and arranged in other ways to facilitate prompt and economical handling. Clerks are so arranged in the office with respect to each other that the work flows in a straight line and is performed on a production basis. This arrangement coordinates the various activities with a minimum of lost motion, eliminates duplications, and all unnecessary abstracting of information on different forms.

More effective supervision is possible in the consolidated offices, where an assistant or chief clerk in charge of the accounting only is employed, than was possible under the division plan, where the chief clerk had a multiplicity of other duties and was unable to devote full attention to the accounting. Moreover, the chief clerks who now remain on the divisions, not having to contend with the accounting, can accomplish better results in checking the details of the operating work.

In the small division accounting organization, it was often necessary to use one clerk on several different classes of work, with the result that speed and the best results were not obtained. In the consolidated offices, the increased volume of work has permitted greater specialization, with the result that the clerks develop greater speed and become highly proficient in their work.

In making the consolidations and reductions in clerical forces, efficiency has not been sacrificed for economy. While it is claimed by some that the division plan is more convenient than the centralized plan, the experience on the Missouri Pacific with both plans has been that the division plan is not worth the price. In the present economic crisis, the centralized plan offers an opportunity for far-reaching economies.

Present Extra Fare Practice O.K.'d By I. C. C.

WASHINGTON, D. C.

THE railroads having eliminated the causes for criticism of their extra fare passenger train practices found by Interstate Commerce Commission Examiners A. S. Worthington and M. L. Boat in a proposed report made public on February 12, the commission has issued a finding that the operation of extra fare trains as now practiced and the fares applicable on such trains have not been shown to be unreasonable or otherwise unlawful and has discontinued its proceeding of investigation of the subject.

"As a portion of the traveling public, as evidenced by its patronage, desires extra fare service which affords unusual and outstanding features not essential to reasonably prompt and comfortable transportation," the commission says in a report by Commissioner Tate made public on July 26, "and it does not appear that the public interest will be adversely affected by the maintenance of such service between the points where now offered, the carriers should have the opportunity to furnish it provided the charges for such service are reasonable and otherwise lawful." As the fourth-section departures for which the eastern railroads had to ask authority to maintain certain extra fares without observing the aggregate-of-intermediates provision of Section 4 of the interstate commerce act, have also now

(Continued on page 158)

Solarium Lounge Cars Include a Soda Fountain, Barber Shop, Bath and Other Conveniences

C. N. R. Sleeping and Dining Car Service Well Organized*

Serving of reduced portions of food encourages passengers to use facilities more freely

THE operation of the sleeping and dining car services of the Canadian National in Canada involves 655 cars, approximately 1,800 employees, a payroll of $1,421,000 and gross revenues of $3,357,652. While the service primarily concerns itself with efficient operation, it endeavors to develop in accordance with the demands of the public. Typical of this is the variety of sleeping cars that have been constructed and the serving of reduced portions of food in dining cars.

The equipment in this service includes 258 standard sleeping cars, 47 tourist cars, 41 parlor cars, 54 buffet parlor cars, 47 cafe parlor cars, 30 compartment observation library buffet cars, 101 dining cars, 19 chambrette sleeping cars, 12 lounge cars and 27 other cars of various kinds. Of the 655 cars, 520 are of steel or steel plated construction.

During 1931 a total of 921,095 passengers occupied space in Canadian National sleeping and parlor cars, 434,855 of these purchasing seats in parlor and standard sleeping cars, 73,986 purchasing upper berths, 323,039 engaging lower berths, 11,848 occupying drawing rooms and 14,374 engaging compartments and chambrettes. The gross revenues from sleeping and parlor accommodations sold amounted to $2,232,484 in 1931, the average per passenger being $2.42.

One of the important factors in the operation of this service is the selection of new cars. When the building of new equipment is contemplated, the officers of the passenger traffic and sleeping and dining car departments confer and consider the type of cars needed. After a decision is reached and authority to purchase is granted, the car department is called upon to prepare plans. After these have been approved by all departments, the purchasing department calls for tenders.

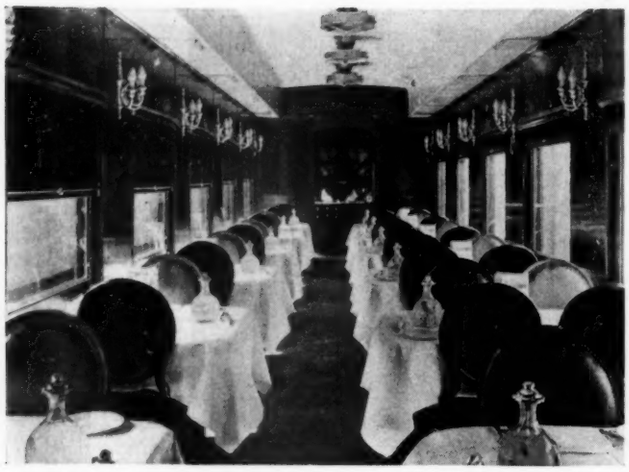
The thoroughness exercised in the selection of cars is manifested in the determination of the type of interior finish and decorative schemes. The sleeping and dining car department, in collaboration with the car department specifies the kind of wood to be used in the interior finish; the grain, color and quality of veneer, the blending of colors in the decks and ceilings, pipe grills, etc. Carpets are specially designed and upholstering materials and blinds are selected to blend with the color scheme and design of the carpet.

In the buying of equipment for sleeping and dining cars, specifications are prepared covering standards for linens, cotton and other fabrics. These embody details of the quality of the yarns to be used, and have regard for tensile strength and durability. In the case of silverware, a standard pattern has been adopted and the specifications cover the weight and the gage of the base metal, the deposit of silver and the finish. Chinaware, glassware and vitrified ware are made according to special designs and specifications, blueprints being submitted to the manufacturer. All cars and equipment are purchased by the purchasing department and all equipment and materials are handled by the stores department, requisitions being filled from reserve stocks whenever possible.

Sleeping Cars Are Named After Stations

Closely associated with the selection of new cars and equipment is the choosing of names for cars. Sleeping cars are named after important stations on the lines. Chambrette sleeping cars, those containing rooms with toilet facilities and a sofa, are named after Canadian ports. Parlor and buffet parlor cars are named after Canadian lakes. Cafe parlor and cafe coaches are

* From an address made by Walter Pratt, general manager of the sleeping and dining car and hotel services, before the Canadian Railway Club.

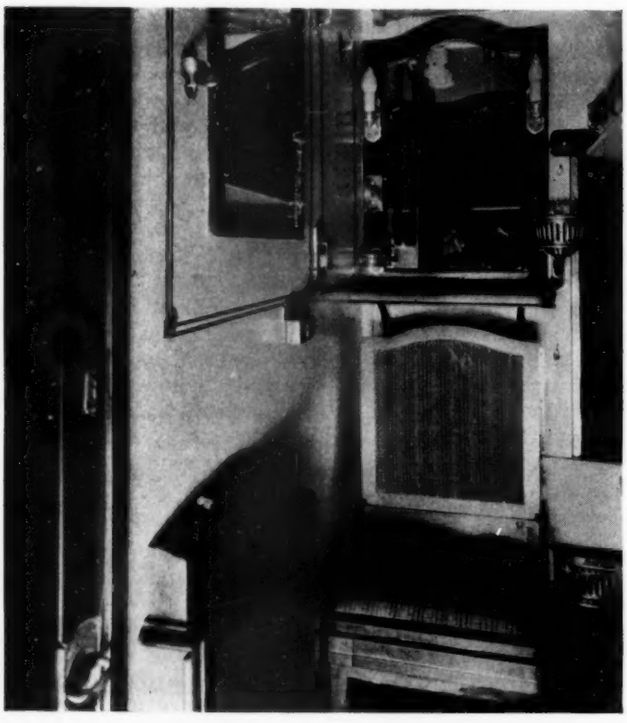


A Dining Car Finished with English Figured and Burl Walnut with Caramandel Stripe Inlay

named after Canadian rivers. Compartment observation sleeping cars are named after Canadian capes. Compartment observation library buffet cars are named after Canadian forts. Lounge cars are named after Canadian bays. Dining, tourist and lunch-counter cars are not named, their only designation being numbers.

Because all equipment is required for service during the spring and summer months, shopping work has to be done between the months of October and June. To accomplish this a shopping program is submitted to the car department in the fall, the program embodying recommendations of the sleeping and dining car department. So far as possible, cars are placed in the shops in the territory in which they operate, in order to avoid deadhead movements.

Apart from the headquarters' staff, the organization is divided into four superintendents' districts, with headquarters at Halifax, Montreal, Toronto and Winnipeg. At the more important points, sleeping and dining car agents supervise the handling of equipment and employees operating in and out of the points at which they are located. Each superintendent has a complete staff for road, platform and yard inspection of employees, equipment and service. The work handled by each superintendent's staff includes two general classifications, accounting and operation.



A Sofa on the Right of the Chambrette Forms the Lower Berth

Another feature of the service is the disciplining of employees. Sleeping and dining car employees are encouraged to do their best at all times and any special or unusual efforts are recognized. Each month a special bulletin is prepared listing each employee who has been favorably commented on and any specially meritorious service is described. The standard merit and demerit mark system is used for all classes of road employees and discipline administered to unsatisfactory employees is registered against their service records.

Length of service is recognized by the award of service bars and maple leaves. These are worn on the uniform sleeve, one service bar being given for five years' service and one additional bar for each additional five years' service, up to five bars for 25 years' service. When an employee has reached 25 years' service, he is then awarded a maple leaf for each additional five years' service. Sleeping car conductors' and dining car stewards' service decorations are of gilt, while sleeping and parlor car porters' are of silver.

Reduced Portions of Food Offered

In the operation of dining cars all commissary supplies are bought by the purchasing department on requisitions submitted by the regional superintendents. Storerooms for handling these supplies are located at strategic points and all supplies are drawn from these different storerooms.

One of the features which has contributed to a favorable food cost percentage on each revenue meal has been the efficient checking system that has been developed in order to summarize and analyze the food percentage showings made by each individual chef and steward. This checking system is worked up from the records available within the department and is separate from the general operating account system. It gives each superintendent complete control of the operating result insofar as the consumption of food supplies is concerned for each individual employee responsible for the collection of revenue and the handling of food supplies, as well as effectively controlling waste in the handling of supplies.

The absence of table d'hote service on Canadian National dining cars is a result of experience which has indicated the patrons' preference to a la carte service. Both services have been tried but the majority of the people prefer the latter. This study of patrons' preference has also resulted in the instituting of various schemes to encourage people, particularly coach passengers, to patronize the dining cars more freely. To accomplish this, the Canadian National offers reduced portions from the regular menus, the portions being a little less than two-thirds of the regular full portion. Printed dodgers are distributed through the coaches, giving specimen menus at reduced portion prices and showing what can be procured at a fixed price.

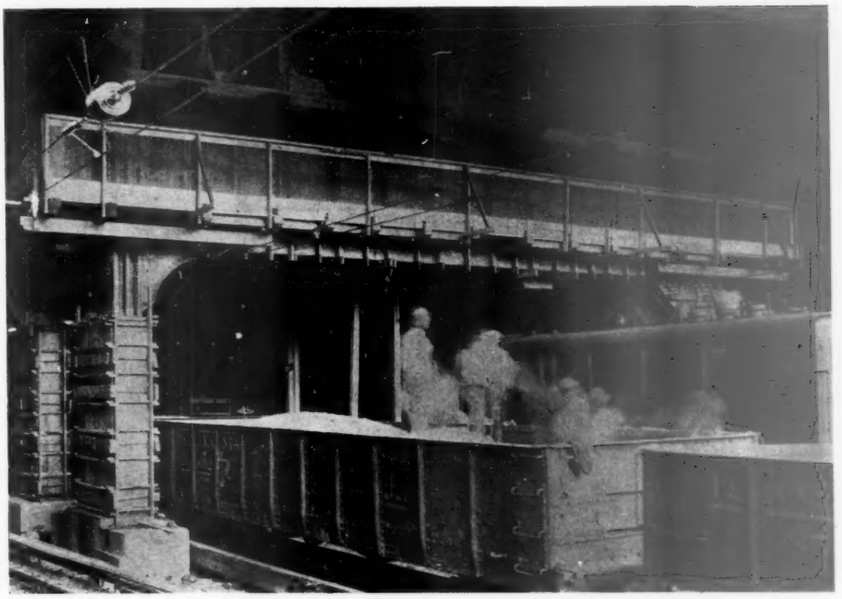
OVER-NIGHT DELIVERY between practically all stations served by the Southern of Great Britain has been made possible by a recent rearrangement of that road's freight services, according to Modern Transport (London). Nearly 50 trains have been re-scheduled, some of the main line runs have been speeded up by more than an hour, switching time has been reduced, and a number of stops formerly made have been eliminated.

Difficult Building Column Changes Made Successfully

From 250 to 1,000-ton loads transferred to new support to permit track and platform changes

THE Pennsylvania was recently confronted with a most unusual and difficult building alteration problem at New York, involving the removal of a number of basement columns carrying loads of 250 tons to 1,000 tons each, and the substitution of new columns in new locations to permit desired building, track and platform changes. This work, while most exacting in character and ordinarily too heavy for execution by the regular maintenance building forces of a road, involved methods which should be of interest to bridge and building department men generally.

The work in question was carried out at the Pennsylvania's station in connection with the contemplated construction of a large annex to the present post office building over tracks immediately west of the passenger terminal building, and the lengthening of one of the main high-level platforms of the station to increase its capacity from 15-car to 20-car trains. Specifically, the work involved the problem of removing 10 of the columns supporting the heavy superstructure of the present post office unit, which is from three to seven stories high.



View Showing the New Steelwork Being Encased and, Above, the New Stiffeners Added to the Old Basement Girders

The columns to be removed were in two lines, with five columns in each, the lines converging toward the west, where the minimum space between them was only 30 ft. 6 in. This arrangement was not in accordance with the proposed column arrangement for the post office annex, and, furthermore, would not permit the extension of the passenger platform between the lines of columns or the straightening and extension of the tracks along each side of it. The problem, therefore, was to construct new columns outside the existing lines of columns, in line with the columns of the proposed annex and sufficiently far apart to permit the platform and track arrangement desired. The obvious difficulty in doing this was that the new columns would be off center from the heavily loaded columns above.

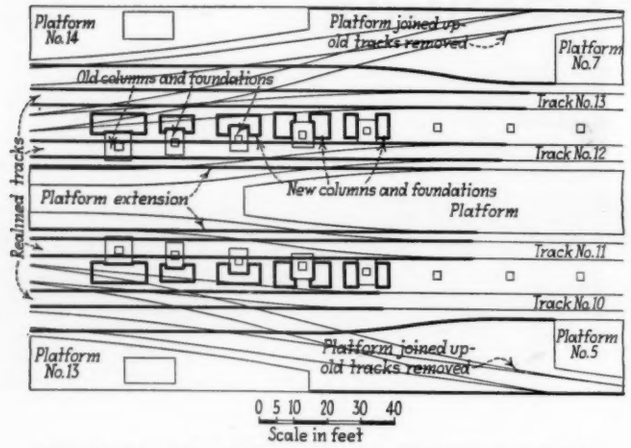
Interesting Methods Used

Of course, this condition had not been anticipated in the design of the old floor girders which were obviously inadequate to transfer the column concentrations from the upper floors to the new columns below in their offset positions, but fortunately the headroom under the old girders was 26 ft. 4¾ in., or 9 ft. 6¾ in. more than the 16-ft. 8-in. operating clearance required. Accordingly new girders 7 ft. 7 in. deep were introduced under the old girders, spanning the tracks and framing into the new columns. The new steel bents thus provided were arranged in pairs with one bent on each side of each pair of old columns that had to be removed.

These girders which weigh 50 tons each, are of box section with two webs of ⅞-in. plates. The flanges consist, in addition to two cover plates, of four side plates and two 8-in. by 8-in. by 1⅛-in angles, i.e., there are flange angles on the outside of the webs only. An interesting feature of these girders is that, because it was found impossible to handle loads in excess of 25 tons with the erecting equipment that could be used in the limited space available, it was necessary to fabricate them in longitudinal halves of one web each with the cover plates riveted to one half, and to splice them by field riveting the cover plates to the flange angles of the other half after erection.

Because the two bents of each pair had to be separated by the width of the old columns, there was introduced the problem of transferring the column concentrations from the old girders to the new ones, which are spaced 4 ft. 2 in. center to center. The beams which had to serve this purpose could be only 16 in. deep and it was felt that they should not be wider than 16 in. as it was feared that a greater width would result in uneven bearing because of the differential of deflection in the new girders on each edge of the beams. With these limitations imposed, it was necessary to use 16-in. by 16-in. billets for these beams, which developed a stress due to bending of 24,000 lb. per sq. in. Silicon steel was therefore specified for these billets.

The two columns at each end of each pair of bents are tower-braced and are supported on six-inch steel bearing plates, welded in place, which transmit the column loads to two grillage girders 60 in. deep, that have a length of 18 ft. 4 in. parallel with the tracks.

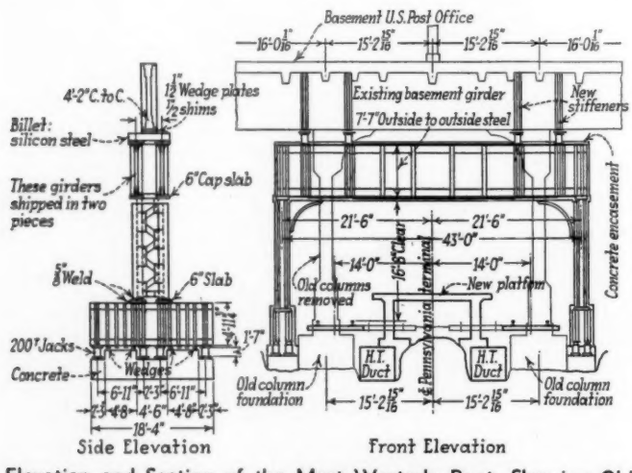


General Plan Showing the Column, Platform and Track Changes Made

These in turn are carried on new concrete foundations which were put down to bed rock to eliminate any possibility of settlement.

The design of the existing structure indicated a maximum column loading of 1,300 tons, this occurring in the most westerly column in each line of columns. Hence, in underpinning the structure and taking the weight off the old columns, eight 200-ton Watson-Stillman hydraulic jacks were provided under each of the new column grillages, as shown in one of the accompanying sketches. In conjunction with the jacks, through steel wedges were used between the column footing plates and the tops of the concrete foundations, which were tapped in after each increment of pressure and finally driven in tight and welded in place on the completion of the work.

To secure even bearing between the old basement girders and the new steel before jacking took place,



Elevation and Section of the Most Westerly Bent, Showing Old and New Steelwork and Method of Transferring Loads

steel shims and wedges were introduced over the silicon billets provided to transmit the old column loads to the new girder and column system. Considerable adjustment was necessary in this work to bring the old and new surfaces into parallel contact.

The change in the position of the end bearings of the existing basement girders made it necessary to provide adequate bearing stiffeners over these new bearing points. This was done by welding 9-in. by 2-in. stiffener bars against the old girder webs. To permit a snug fit of the bars against the webs, they were burned out where necessary to fit over the rivet heads and side plates, and, in accordance with recommended welding practice, they were beveled along their lines of contact with the webs to insure strong welds.

The bars were spaced 4½ in. center to center and, having been fabricated one-half inch short, were wedged up at the bottom to insure a snug fit in erection. Held in place by this means, they were welded to the webs along both sides continuously by ½-in. fillet welds, and the space at the bottom was then filled completely with weld metal to insure a good bearing. All welding was done by the electric-arc method, which proved highly effective in spite of the difficult working conditions under which it was done. Stiffeners could not have been added by the riveting method in this case because the girders are of the box type.

Close Control Kept with Strain Gages

Confronted with the necessity of being able to determine when the loads had been transferred from the old to the new columns, strain gages were attached to all faces of both the old and new columns and were watched closely to check the action of the jacks and the transfer of the loads to the new columns. Incidentally, it was found that all readings of the gages agreed with the jack pump pressures within close limits.

Column Loading and Jacking Data

Bent No. (2 Cols.)	No. of Jacks	Design Load, Tons	Actual Load Raised (Tons)	Actual Rise in 1st Story Columns	Net Rise after removing old Columns	Pressure on Pumps, Lbs. per sq. inch	Strain Gage Readings New Columns (Load Applied)*	Strain Gage Readings Old Columns (Load Applied)*
1	8	1350	950	1/16"	3/64"	4150	9.87 divs.	9.65 divs.
2	4	450	200	1/16"	1/32"	1800	8.27 divs.	7.5 divs.
3	6	900	650	3/64"	0	3900	13.62 divs.	11.0 divs.
4	8	1000	700	1/16"	0	3300	13.62 divs.	10.8 divs.
5	8	450	220	1/8"	1/8"	1200	9.37 divs.	8.5 divs.

* 1 div.—600 lb. per sq. in. (Final readings—jacks released). Area pump ram 56.75 sq. in.

To preclude the possibility of raising the first floor and the first floor columns to any extent in the jacking operations, which would have caused cracks or the enlargement of existing cracks within the building, the jacking was carefully controlled and an organization of men was set up to keep close check upon the effects produced upon the old and new columns and on the floors and walls throughout the building generally. Pressure on the jack pumps was applied in increments of 300 lb. per sq. in., or about 68 tons, with an interval of three minutes between each pressure increase to enable the observation and coordination of the strain gage readings.

During the jacking, four men with two levels were posted within the basement of the building, remote from the jacking operations, to observe any rise which might occur in the first-story columns. These men were in direct communication with the jacking force below by means of an electric buzzer system.

As noted in the accompanying table, the actual rise in the first-floor columns was ⅛ in. or less, being 1/16 in. in the case of the columns of three of the bents. In

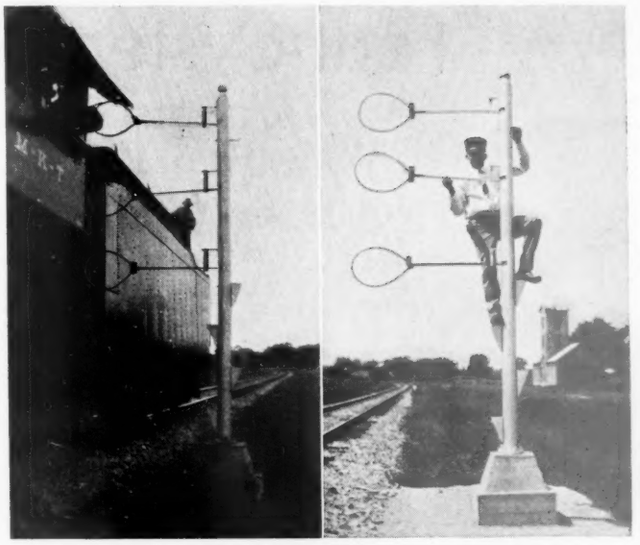
all cases except one, the net rise after the removal of the old columns was less than the rise during the jacking, which was as expected.

Careful examination of the building before, after and during the jacking operations showed that no new cracks developed in the floors or walls, and that no existing cracks were enlarged or lengthened.

Following the transfer of the column loads, the old columns were removed and the new steel was encased in concrete. One of the illustrations shows this latter work under way with the forms about certain of the new columns and a platform under the new overhead steelwork which was encased by the Gunite method.

All materials and stationary equipment used in the work, including pumps, concrete mixers and concrete aggregates, were located between the tracks where they would not interfere with traffic at any time, and all steel erection was done between the hours of 10:30 p.m. and 4 a.m., the period of fewest train movements, when full use could be obtained of the tracks required.

The work described was done under the general direction of A. C. Watson, chief engineer, New York zone, and under the direct supervision of T. W. Pinard, engineer bridges and buildings, and E. L. Goldsmith, supervisor of construction. The design work in connection with the column changes was done under the direct supervision of Paul Penhune, supervising draftsman, to whom we are indebted for the information contained in this article. Moran & Proctor, New York, were consultants on the work, and Gibbs & Hill, Inc., New York, were the general contractors.



Stewart's Train Order Delivery Staff

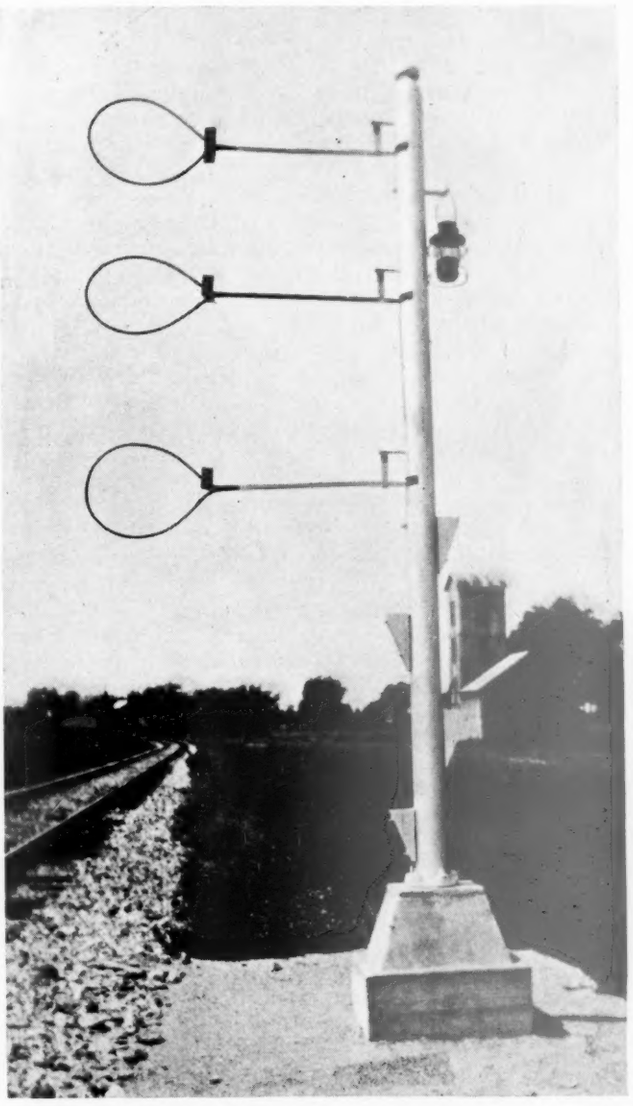
THE iron column for holding train-order hoops in position for delivery to moving trains, shown herewith, is one of three in use on the Missouri-Kansas-Texas, designed by R. W. Stewart, agent of that road at Clifton City, Mo.; a convenient device which has proved highly satisfactory in service. The hoops are held in position so that the man in the locomotive cab and the brakeman at the rear of the train (on the step of the caboose) can readily take the hoops without moving from their positions.

The upper two hoops are for the first and second engines of a double header and the lower one is for the brakeman (or conductor). The iron post, 4 in. in diameter, is 11 ft. long and is set on a base of the right height to bring the hoops to a standard height above the track. The station agent is free to stand back away from the train and the fireman avoids the inconvenience and possible danger of posting himself in the gangway or on icy tender-steps in winter.

The hoop, of rattan with a wooden handle of square section, is supported by a short clasp depending from a pin fixed in the post. The clasp is made of two flat springs, of such strength as to prevent disturbance by wind, while readily releasing the handle when the hoop is pulled out.

The end of the handle rests in the block on the post in a position free to move about 45 degrees either forward or back, and it is also free to move some distance up or down, thus providing against any difficulty due to excessive speed of train or other irregularity.

The first of these devices was installed at Clifton City about two years ago. Since then similar staffs, differing slightly in details of construction, have been installed at Nevada, Mo., and Esmond, Kan. Application for a patent is pending.



Staff for Holding Train-Order Hoops

Four-System Plan Approved

I.C.C. modifies both its own consolidation plan and that of Eastern executives

WASHINGTON, D. C.

THE four-system plan for the consolidation of the eastern railroads (excluding New England) was approved by the Interstate Commerce Commission in a report by Chairman C. R. Porter dated July 13 and made public on July 21, modifying the commission's plan of December 9, 1929, which had provided for five eastern systems. This was accomplished by eliminating System No. 7 of the plan, the Wabash-Seaboard system, and reallocating the railways assigned to that system as well as some others, largely in accordance with the plan agreed upon by the executives of the principal eastern systems as set forth in the application filed on October 3, 1931, by the Baltimore & Ohio, the Chesapeake & Ohio, the New York Central, and the Pennsylvania.

Several changes from the plan as proposed by the roads were made by the Commission, however, to meet objections, largely of a local nature which had been advanced at the hearings, but a majority held that the public interest would be best served by four systems instead of five. Commissioners Eastman and McManamy dissented and Commissioners Brainerd, Lee and Mahaffie, concurring in part, objected to particular features of the decision.

In other words the commission, after having promulgated a plan which has resulted in very little voluntary unification in accordance with its allocations, has now consented to revamp its allocations in such a way as to fit, with some exceptions, the practical situation already existing as the result of affiliations built up by the railroads themselves during the period between the publication of the commission's tentative plan in 1921 and the promulgation of its "final" plan in 1929. The report points out that of the 57,000 miles of railroad in the territory under consideration there are less than 13,000 miles unaffiliated with any of the four principal groups or "systems," of which 47 per cent is in short or terminal lines. Much of this mileage, however, is still held under a very incomplete control, or through holding companies, in a way that has not been sanctioned by the commission, so that much remains to be done, even under the general approval indicated by the modification of the commission's plan, to build the mileage already controlled into co-ordinated systems, in addition to the acquisition of properties included in the 13,000 miles.

Commissioner Eastman said that the adoption of the four-system plan "has slaughtered the plan for the entire country which we set up in 1929", and that it must be made over again. The plan of the railway executives, he said, has in large part already been accomplished "at great cost and mostly without our approval" and "we have found that to a very considerable extent it was done illegally". Events suggest, he said, that instead of directing the commission to prepare a plan for the consolidation of the railroads, "it would have been simpler to have asked a few of the larger railroads to agree upon a plan for the distribution of the lesser railroads among them". He not only severely criticized the four-system plan, for one reason that "it is predominantly an east-and-west plan centering on New York City", but also declared that conditions are not now favorable to the determination of any permanent plan of alignment for the roads in eastern territory". Commissioner McManamy joined in Mr. Eastman's expression.

Of the total of approximately 57,000 miles of line owned by over 300 companies, allocated to the four systems under the modified plan, about 31.5 per cent is allocated to the Pennsylvania system, as compared with 24.5 per cent to the Chesapeake & Ohio—Nickel Plate, 23.7 to the New York Central, and 20.3 per cent to the Baltimore & Ohio, according to the report.

Pennsylvania Expected to Give Up New England Interests

Approval, however, can not be given, the report said, to any application of the Pennsylvania designed and seeking to carry into effect any portion of so much of the proposed four-system plan as relates to system No. 4, "unless and until that railroad company either has divested itself of all stock held by it both directly in the New Haven and indirectly (through the Pennroad Corporation, the Pennsylvania Company, or any similar instrumentality) in the New Haven and the Boston & Maine, or has placed all such stock in the hands of independent trustees approved by us as in the public interest, under suitable terms and conditions for voting and sale, consistent with the provisions of the act and with our modified final plan".

Commissioner Eastman said that the same reasons which dictate the trusteeing of the Pennsylvania holdings in New England "also dictate the trusteeing of the Missouri Pacific stock now reposing in Van Sweringen holding companies", but that "instead, the latter situation is ignored". The majority report, however, did call attention to its former statement that "the continuation or acquisition of intersystem interests . . . will be inconsistent with the independence necessary to true competition" and said that that requirement "will be adhered to in passing upon applications submitted to us for consolidations or acquisitions looking toward the consummation of the modified plan for eastern territory."

Principal Modifications

The principal modifications in the plan of 1929 and the extent to which the commission has approved or disapproved the modifications asked by the applicants, are shown by the following:

The Delaware & Hudson is left independent, instead of being allocated jointly to the four systems as proposed in the application or to System No. 1—Boston & Maine, as in the commission's plan.

The New York, Ontario and Western is left in the New Haven system No. 2, as in the 1929 plan, instead of being transferred to System No. 3—New York Central as proposed in the application.

The Lehigh & Hudson River is reallocated from System No. 2—New Haven, to System No. 3—Baltimore & Ohio, as proposed in the application.

The Lehigh & New England is reallocated from System No. 2 to joint ownership by the four systems as proposed.

The Virginian is left in System No. 3—New York Central, instead of being reassigned to joint ownership

by System No. 4—Pennsylvania and No. 6—Chesapeake & Ohio—Nickel Plate, as requested.

The Detroit, Toledo & Ironton is changed from joint ownership by Systems No. 5 and No. 7 to System No. 4—Pennsylvania, as requested.

The Delaware, Lackawanna & Western is transferred from System No. 6 to System No. 3—New York Central, as requested.

The Wabash, the Toledo, Peoria & Western, and the Norfolk & Western, are reallocated from System No. 7 to System No. 4—Pennsylvania, as requested.

The Lehigh Valley, the Wheeling and Lake Erie, and the Chesapeake & Ohio of Indiana are transferred from System No. 7 to System No. 6—Chesapeake & Ohio—Nickel Plate.

The Pittsburgh & West Virginia, except that portion west of Gould's tunnel, and the Akron, Canton & Youngstown are transferred from System No. 7 to joint ownership by the four systems, and the Pittsburgh & West Virginia west of Gould's tunnel to System No. 6, as requested.

The Western Maryland and the Ann Arbor are transferred from System No. 7 to System No. 5—Baltimore & Ohio, as requested.

The Chicago & Eastern Illinois is transferred from System No. 11—Chicago & Northwestern, to System No. 6—Chesapeake & Ohio—Nickel Plate.

The Chicago, Indianapolis & Louisville, which had been assigned to joint ownership by System No. 5—Baltimore & Ohio, No. 8—Atlantic Coast Line and No. 9—Southern, and which the four-system application had proposed to assign to the Baltimore & Ohio, is reallocated to Systems No. 8 and 9 equally.

The Monongahela is reallocated from point ownership by Systems No. 3, 4 and 5 to joint ownership by the four systems, as requested.

The Pittsburgh, Chartiers & Youghiogheny is reallocated from joint ownership by Systems No. 3 and 4 to joint ownership by the four systems, as proposed.

The Montour, not allocated in the plan, is assigned to joint ownership in the four systems as proposed.

The commission also assigns the branch of the Delaware, Lackawanna & Western from Chenango Forks to Oswego, N. Y., through Syracuse, and trackage rights over the Delaware, Lackawanna & Western from Binghamton to Chenango Forks, N. Y., to the Chesapeake & Ohio—Nickel Plate system in order to avoid reduction of competition at Oswego and Syracuse.

The Elgin, Joliet & Eastern, which the application proposed to allocate to the four systems jointly, is left unallocated.

The Seaboard Air Line and a number of short line connections is left unallocated for the present.

Three electric lines not allocated in the original plan are assigned in the modified plan to System No. 3—New York Central, the Lackawanna & Wyoming Valley, the Southern New York, and the Jamestown, Westfield & Northwestern.

A condensation of the majority report by Chairman Porter and of the separate opinions follows:

Our plan of 1929 provides for seven systems in the territory, generally speaking, east of the Mississippi River and north of the Ohio and Potomac Rivers, including parts of Virginia and West Virginia, referred to as eastern territory. Systems Nos. 1 and 2 are in New England territory, except that the so-called bridge lines allocated to those systems are in whole or in part, in trunk-line territory, namely, the Delaware & Hudson Company, now the Delaware & Hudson Railroad Corporation, in system No. 1, Boston & Maine, and the New York, Ontario & Western Railway Company, the Lehigh & Hudson River Railway Company, and the Lehigh & New England Railroad Company in system No. 2, New Haven. For the remainder of eastern territory our plan provides for five systems, namely, No. 3, New York Central, No. 4, Pennsylvania, No. 5, Baltimore & Ohio, No. 6, Chesapeake & Ohio-Nickel Plate, and No. 7, Wabash-Seaboard. The application before us asks that we modify our plan for eastern territory, excluding New England, so as to provide for four instead of five systems, and that this be accomplished by eliminating system No. 7 and reallocating the railway properties now assigned to that system among systems Nos. 3 to 6, inclusive, and modifying in certain respects the allocations to the other systems in eastern territory, in a manner agreed upon by the applicants and set forth in detail in their application.

Fifth System Impracticable

The record now before us shows that no steps have been taken by any one with the object of carrying into effect system No. 7 as planned by us, and no one appeared at the further hearing in favor of that system. Since our plan was published the Wabash and the Seaboard Air Line, which form in large part the backbone of that system, have been placed in the hands of receivers. Aside from financial instability, there have arisen grave doubts whether in other respects system No. 7 would fulfill the requirements of the statute. The principal railroads included in the system appear to lack desirable coordination, important existing routes and channels of trade and commerce, particularly between the South and the North, would be quite certain to be displaced by circuitous and less efficient or desirable routes, over which the cost of transportation would be substantially greater than over competitive routes, and the total additional capital investments which would be necessary to insure adequate connections between the various properties and adequate track and terminal facilities for the principal routes upon which the system as planned would have to depend would be prohibitive.

The only effort since our plan was published to form a fifth system in this territory was made by the Wabash, which at one time applied for a modification of our plan so as to provide for a so-called Wabash system, which excluded the Norfolk & Western, the Seaboard Air Line, and the Chesapeake & Ohio of Indiana, all of which are included in our system No. 7. That application was withdrawn. With exceptions later to be noted, and which may be regarded as more or less of a local nature, the only objection presented to a 4-system plan in eastern territory, excluding New England, comes from the Wabash.

The provisions of the law respecting the consolidation of the railway properties of the country into a limited number of systems give expression to what we must regard as the settled policy of the Congress. It is evident that the competition which the Congress desires to have preserved is healthful competition, because any other kind of competition can not be in the public interest, and that, since the public interest is paramount, any existing routes and channels of trade and commerce which promote unhealthful competition need not be maintained. Obviously, also, the costs of transportation as between competitive systems, their efficiency in management, and therefore the rates of transportation which they carry, are affected by the financial stability of the respective systems.

Four Systems Only Workable Plan

Since the publication of our plan in 1929, and more especially in the consideration of the evidence upon this record, it has become increasingly apparent that no workable plan of consolidation in conformity with the law can be devised which calls for more than four systems in eastern territory, excluding New England. Two large and powerful systems, the Pennsylvania and the New York Central, already in existence, fairly equal to one another, own or control almost one-half of the entire railroad mileage in this territory. They control an even greater proportion of the desirable mileage. Generally speaking, the railway properties controlled by these two systems, with exceptions later to be noted and which if otherwise allocated would make no material change in the picture, are fairly well coordinated and upon this record have not been criticised by any one. In 1930 those properties earned more than 55 per cent of the total net railway operating income from all of the Class I roads in this territory, and their rate of return was at least as favorable as that of all of the other Class I properties combined. Actual consolidation is voluntary, and if the fruits of consolidation are to be realized within the not too distant future, this condition must be taken into consideration in formulating a permanent plan.

Aside from the lines controlled by the two major systems named, there are in this territory approximately 32,000 miles of railroad. Having in mind the objective of devising a

workable plan which is in accord with the law, the problem seems to be how to build those remaining properties into systems which will be as nearly equal as may be to the two major systems now in being. In addition to those two major systems there are now in this territory two other systems which have shown considerable strength, the Baltimore & Ohio and the Chesapeake & Ohio-Nickle Plate. Those systems now own or control approximately 20,000 miles of road, and this record contains no serious suggestion that they should not be continued. Of the remainder of about 13,000 miles unaffiliated with any of the four systems named, about 30 per cent consists of short lines which cannot be helpful in building strong systems, and about 17 per cent of terminal lines or of so-called New England bridge lines. This leaves less than 7,000 miles of railways, most of which so lacks coordination that to build out of these remaining properties a fifth system which would have the necessary physical and financial strength to serve the public efficiently and economically in competition with the other four systems already wholly or partly in being is impossible. We believe that the public interest will be best served by grouping the railways in eastern territory, excluding New England, into four systems, each having adequate main stems between the Atlantic seaboard and the Middle West, reaching a majority of the large producing and consuming centers of the territory, having the necessary physical and financial strength to serve the public efficiently and economically and to coordinate their services with other modern means of transportation, and which will be so constructed as to preserve healthful competition and maintain, as far as practicable, the existing routes and channels of trade and commerce. We are of opinion that the four systems proposed by the applicants, modified in the respects hereinafter noted, will achieve those objectives.

Alterations Made to Meet Objections

Widespread objection from state and city authorities, shippers' organizations, and carriers in southern territory and in Indiana, from the Chicago, Ill., Board of Trade, and from several railroad brotherhoods was made against the proposed allocation by the applicants of the Chicago, Indianapolis & Louisville Railway Company, referred to as the Monon, to system No. 5, Baltimore & Ohio. In our plan this property is allocated one-half to system No. 5 and the other half equally and jointly to system No. 8, Atlantic Coast Line and system No. 9, Southern. The Southern and the Louisville & Nashville have been since July 1, 1902, and are at present joint and equal owners of 93.4 per cent of the common stock and 77.4 per cent of the preferred stock of the Monon. The importance of the Monon in the maintenance of a healthy competition between the North and the South, and the consequent desirability of keeping open existing routes and channels of trade and commerce between those two sections of the country, have convinced us that this property should remain with its present ownership, and we shall modify our plan and allocate the Monon equally to systems Nos. 8 and 9.

The four systems proposed by the applicants would embrace the four so-called New England bridge lines. The New York, Ontario & Western would be allocated to system No. 3, the Lehigh & Hudson River to system No. 5, and the Delaware & Hudson and Lehigh & New England jointly to the four systems. As previously stated, all of these bridge lines are now allocated to one or the other of the two New England systems. Vigorous opposition to the proposed allocation of one or all of the bridge lines developed from the New England states, except Rhode Island, from the cities of Boston, Mass., Providence, R. I., and Oswego, N. Y., the Delaware & Hudson, the Lehigh & New England, the Boston Port Authority, and numerous shippers and shippers' organizations in New England. The great majority of these New England interests are divided into two groups. One favors a single New England system, with the possible exclusion of the Boston & Albany and the Canadian lines. The other favors trunk-line penetration of New England by the allocation of all of the New England railways, excepting the Canadian lines, respectively, to the four systems here proposed for the balance of eastern territory. Those who belong to the first group, together with the city of Boston and the Boston Port Authority, ask that the bridge lines remain allocated as they are until the New England railroad problem can be further heard and definitely settled, and that the Pennsylvania Railroad Company and its affiliated Pennroad Corporation be required to dispose of or trustee their stock holdings in the Boston & Maine and the New Haven as a condition precedent to our approval of the balance of the application. Those who belong to the second group ask approval of the applicants' plan, including the part of it relating to the bridge lines, provided that such approval be given with the view of extending the trunk lines into New England. All of the objecting New England interests agree with Oswego that the application should not be approved in so far as it asks the reallocation of the New York, Ontario & Western from system No. 2 to system No. 3. The city of Boston and the Boston Port Authority further ask that our action on this application be deferred until the entire New England problem can be heard and disposed of. The Delaware & Hudson asks that it be permitted to remain in system No. 1, and the Lehigh & New England wishes to be allocated, if at all, to a single system.

The New England Problem

The subject of consolidating the railroads into a limited number of systems was reopened by us only with respect to the railroads in eastern territory, excluding New England, which are embraced in the application here being considered. That subject has not been reopened with respect to the New England roads, and we can not here pass upon any suggested modifications of our plan for those roads. It seems quite evident that many New England interests will desire us to give further consideration to the New England problem. If such further consideration by us should be later deemed to be desirable, we are persuaded that it should follow a still more intensive study of the problem by New England interests and agreement, if possible, among themselves. The possibility that application for such further consideration of the New England problem may later be filed, however, seems to us no sufficient reason for deferring action upon the application before us.

The New York, Ontario & Western is a necessary link in an important route connecting the Port of Oswego on Lake Ontario with the Port of Boston in connection with the New Haven. This property would add little, if any, strength to any trunk-line system, but it has great possibilities as a part of the shortest rail route between the Great Lakes and the Atlantic seaboard. We do not feel warranted in changing the allocation of this road.

The Lehigh & Hudson River is a necessary adjunct of the proposed Baltimore & Ohio system, so as to afford the latter a direct connection with the New Haven. The Reading and Central Railroad of New Jersey, both of which are allocated to system No. 5, now own about 40 per cent of the capital stock of this property. We believe that this property will be of greater use to the public as a part of system No. 5 than as a part of any New England system, should any such become a fact. Accordingly, we shall reallocate the Lehigh & Hudson River to system No. 5.

The Lehigh & New England reaches into the southern anthracite-coal field of Pennsylvania and runs to Campbell Hall, N. Y., although its main-line operation extends beyond to a connection with the New Haven at Maybrook, N. Y. While it originates considerable anthracite coal and cement, it is and must remain primarily a bridge carrier. It connects west of Maybrook with nine carriers, a greater number than is afforded directly or by means of a bridge line, at any other New England gateway. It is of unusual importance, therefore, as a gateway to New England for all those systems. We believe that the public interest will be best served by allocating the Lehigh & New England in equal parts to the four systems.

The Delaware & Hudson is the most important of the New England bridge carriers. This property will be more vital to system No. 1, if two New England systems are to be formed, than would be any of the other bridge lines to system No. 2. On the other hand, if one New England system is to be the ultimate for the railway properties of that territory, it would seem that the Delaware & Hudson could best serve the public interest if it were owned jointly by the four systems. Accordingly, the properties of the Delaware & Hudson Railroad Corporation and the short-line connections allocated with it in our plan of 1929 will be left for the present as an independent system.

The Pennsylvania Railroad Company owns 15.52 per cent and the Pennroad Corporation 7.27 per cent, or a total of 22.79 per cent of the voting stock of the New Haven. The Pennroad Corporation owns 19.25 per cent and the Boston Railroad Holding Company, all of the voting stock of which is owned by the New Haven, owns 26.18 per cent, or a total of 45.43 per cent, of the voting stock of the Boston & Maine.

It seems to us very clear that no plan for the allocation of the New England railroads which would permit system No. 4 to acquire both the Boston & Maine and the New Haven can be devised which would not tend to destroy existing competition at New England gateways, dry up exist-

ing routes and channels of trade and commerce between New England and other parts of the country, and in effect monopolize the traffic of an important section of the United States, contrary to the requirements of section 5 (4) of the law.

In announcing our final plan on December 9, 1929, we said:

> In order that the systems herein proposed, or any others that may be formed, may properly perform the functions intended by Congress and that competition may be preserved as required, they must be independent in fact as well as in name. The continuation or acquisition of intersystem interests directly or indirectly through holding companies, stock ownership, or otherwise, will be inconsistent with the independence necessary to true competition. Carriers will, therefore, be expected to observe this requirement in submitting proposals for consolidations and to cooperate in establishing the desired status.

We believe that requirement to be sound, and it will be adhered to in passing upon applications submitted to us for consolidations or acquisitions looking toward the consummation of the modified plan for eastern territory, excluding New England, herein approved.

If trunk-line penetration should be later determined upon for New England there is reason to believe that New England interests would prefer to have the New Haven, at least in part, go to system No. 4. In view of the fact, if our modified final plan herein approved is consummated, that system No. 4 will be relatively larger and stronger than any of its competing systems, we are not at all certain, however, that the public interest would permit that system to be interested financially in any New England railway property. The Pennsylvania system will not only predominate in size but most likely in financial strength, for the properties allocated to it earned in 1929 and 1930 a greater annual return on the investment therein by about 0.5 per cent than was earned on the properties allocated to any of its competing systems. If the New Haven with its 2,122 miles were added to the Pennsylvania system without any addition to the Baltimore & Ohio system, for example, as herein planned, its mileage would exceed that of the latter system by about 74 per cent. These circumstances raise grave doubt, even if trunk-line penetration is finally determined upon for New England, whether the Pennsylvania system should be permitted to retain any of its holdings in the New Haven or in any other New England railway property. If one or two purely New England systems should be determined upon, it would become even more imperative, in order to insure freedom of carrier competition, that the Pennsylvania relinquish its interests in the New Haven. We can not, of course, be unmindful of the possibility that at least a large portion of the consolidation under system No. 4 may be consummated before the New England problem is finally settled, and in that event under the law as it now stands we might find ourselves powerless, even with the aid of the courts, to require the Pennsylvania to relinquish its holdings in New England railroads.

Elgin, Joliet & Eastern

In our final plan the Elgin, Joliet & Eastern Railway Company was designated a terminal property and left for future allocation. Applicants propose its allocation to the four systems jointly so as to afford to each an opportunity to reach and serve the industrial area in which the Elgin operates. This terminal line is now independent of any of the trunk-lines and furnishes equal facilities and services to all. We adhere to our statement with respect to terminal properties made in the prior report. We there said, among other things, that "all terminal properties should be thrown open to all users on fair and equal terms so that every industry on whatever rails located shall have access to all lines radiating from that terminal, and every line carrier reaching that terminal shall similarly have access to all terminal tracks within the terminal area." For the purpose of attaining that objective we shall leave the Elgin, along with other purely terminal properties, without specific allocation now.

Oswego and Syracuse

Oswego, N. Y., a growing port on the eastern shore of Lake Ontario, is served by the New York, Ontario & Western, the Delaware, Lackawanna & Western, hereinafter called the Lackawanna, and the New York Central. In the proposal of the applicants all of the roads serving this port would be consolidated into system No. 3. As previously stated, Oswego interests strongly object to the proposed allocation of the New York, Ontario & Western to the New York Central. For the reasons stated, that road will be left as it is, with system No. 2.

Syracuse, N. Y., presents objection to the applicant's plan in so far as it affects that community in many respects similar to the objection offered by Oswego. Syracuse is served by the New York Central and the Lackawanna. Under the proposed plan it would be served by only one system.

Competitive Service Assured to Oswego and Syracuse

We have given careful consideration to the evidence relating to the proposals affecting Syracuse and Oswego. We are convinced that the requirements of the statute would not be met by taking away from a community of the size of Syracuse the competition of two strong roads and leaving it with only one system. We believe, however, that competition will be fully preserved and existing routes and channels of trade and commerce maintained to the extent required by the public interest if the branch of the Lackawanna extending from Chenango Forks, N. Y., through Syracuse to Oswego is allocated to system No. 6, together with trackage rights to the latter system over the Lackawanna between Binghamton and Chenango Forks. Utica is now served by the New York Central system, the Lackawanna, and the New York, Ontario & Western, and under this modification it will, like Syracuse, have the benefit of two competing systems.

The applicants would allocate the Chesapeake Western Railway to system No. 4 and the Valley Railroad Company to system No. 5. Under our plan the former is allocated to system No. 7 and the latter to system No. 5.

We believe that the Chesapeake Western will be best able to serve the public concerned if it is made a part of the same system to which the Norfolk & Western is allocated. The Valley Railroad has been operated by the Baltimore & Ohio for many years at a deficit. It is disconnected from any line owned or proposed to be owned by the Baltimore & Ohio, the latter road extending down the Shenandoah Valley only to Strasburg Junction, which is 49 miles north of Harrisonburg. If this road remained allocated to system No. 5, therefore, it would be entirely disconnected from the other properties of that system. In view of the facts now revealed to us, we believe that the Valley Railroad would be of greatest use to the public as a feeder to system No. 6.

Detroit

The Baltimore & Ohio does not now have an entrance of its own into Detroit, Mich. Under our plan system No. 5 would have an undivided half interest in the Detroit, Toledo & Ironton and in the Detroit & Toledo Shore line, both of which reach Detroit. The Detroit, Toledo & Ironton is now to become a part of system No. 4, a half interest in the Detroit & Toledo Shore Line is to remain with system No. 5, and in addition the latter system is to have trackage rights over the Pere Marquette from Toledo to Detroit. Stock ownership in the Detroit & Toledo Shore Line now rests with the Nickel Plate and the Grand Trunk Western, the latter owned by the Canadian National. The half interest of the Nickel Plate is to go to system No. 6 and the acquisition of the other half is to be attempted by system No. 5 from the Grand Trunk Western.

The Detroit Board of Commerce is not satisfied with this arrangement. It desires that the Baltimore & Ohio acquire at least a half interest in one of the Detroit-Toledo lines so that some degree of competition between that system and the other major systems serving Detroit may be assured. In the fear that the Baltimore & Ohio will not be able to acquire the interest of the Grand Trunk Western, it urges that the half interest in the Detroit & Toledo Shore Line now owned by the Nickel Plate be allocated to system No. 5 in the event that the interest of the Grand Trunk Western can not be purchased. We see no reason for not allocating the Detroit & Toledo Shore Line to system No. 5, with the understanding, of course, as the law now stands, that if the interest of the Grand Trunk Western therein can not be purchased the Baltimore & Ohio will have to be content with the half interest now owned by the Nickel Plate.

The Detroit & Toledo Shore Line does not operate a passenger service. The Baltimore & Ohio now operates a passenger service between Toledo and Detroit over the Pere Marqutte via Romulus and the Wabash. It is proposed to continue this service, although the application asks for trackage rights to system No. 5 only over the line of the Pere Marquette, which is 82 miles long as compared with 64.3 miles in connection with the Wabash. We assume that the desire is to give to system No. 5 the trackage rights necessary to continue the present passenger service of the Baltimore & Ohio, and trackage rights accordingly will be allocated to that system.

The Detroit Board of Commerce asks, also, that system No. 5 be given trackage rights over the Pere Marquette from Detroit to a connection with the Ann Arbor at Annpere, Mich., so as to enable that system to compete for traffic

originating in Detroit or east thereof destined to points on the Ann Arbor or across Lake Michigan. Without this additional trackage it is evident that system No. 5 would not be in a position to compete successfully for this Northwest traffic from or via Detroit, and we are of opinion that the right to its use should be granted to that system.

Western Maryland

Under our final plan the Western Maryland is allocated to system No. 7, Wabash-Seaboard. The applicants propose its allocation to system No. 5. Their principal reasons for this proposal are, first, that the Western Maryland forms an integral link in the so-called historic inner route via the Baltimore & Ohio, Cherry Run and Hagerstown, Md., the Western Maryland, Shippensburg, Pa., and the Reading system, and it is essential that system No. 5 control this inner route; and second, that the single-track line of the Western Maryland is needed as a third track for the Baltimore & Ohio east of Connellsville, Pa. Various commercial interests of Baltimore, Hagerstown, and Elkins, W. Va., object to the proposed allocation of the Western Maryland.

Those who object to the proposed allocation of the Western Maryland to system No. 5 do so in the belief or hope that this property, in conjunction with the Pittsburgh & West Virginia and the Wheeling & Lake Erie, can be developed into a through route between Baltimore and the lakes which will afford real competition with the other systems serving Baltimore. Several attempts have been made to form such a route and none of them has been successful. We have no reason to believe that such attempts in the future would be any more successful than have been those made in the past. It is our conviction that Baltimore will be better served by the strengthening of the Baltimore & Ohio, which has always had and will most likely continue to have a major interest in that city and port, so that its future as a strong competitor of the Pennsylvania becomes assured, than to afford to it a third system the competitive effect of which would be highly problematical and thereby render less effective to Baltimore the one system which has done more, and is likely to do more, than any other to promote its future welfare. Under the plan as herein modified Baltimore will have the same number of systems as will Philadelphia. We believe that the public will be best served, and the requirements of the law will be met, by the allocation of the Western Maryland to system No. 5.

Virginian

The State Corporation Commission of Virginia, the State of Virginia Board of Public Works, the city of Norfolk, Va., and the property owners committee, the latter a voluntary organization of representatives of the owners of coal properties in Virginia, West Virginia, Kentucky and Tennessee, object to the applicant's plan, particularly as it affects the Pocahontas lines. The latter are the Chesapeake & Ohio, which it is proposed to leave with system No. 6, as allocated by us; the Norfolk & Western, which it is proposed to reallocate to system No. 4 instead of system No. 7 as allocated by us; and the Virginian, which applicants propose to allocate jointly to systems Nos. 4 and 6, instead of to system No. 3, with a half interest in the branch between Mullens and Gilbert, W. Va., to system No. 6, as allocated by us. These protestants oppose the allocation of the Pocahontas lines to any systems, and insist that they should be left independent.

The argument that a particular road is financially strong enough to warrant the belief that it could compete successfully with any other systems which might be formed is inconsistent with the consolidation provisions of the law, for if each carrier in eastern territory, excluding New England, which has shown relatively good earnings in recent years were to be allowed to as many separate systems upon the ground that each was able to maintain itself, the requirement that the several systems shall be so arranged that the cost of transportation as between competitive systems shall be the same, so far as practicable, so that the systems can employ uniform rates on competitive traffic and under efficient management earn substantially the same rate of return upon the value of their railway properties, would be impossible of fulfillment. The primary purpose of consolidation, as we understand it, is to effect, subject to certain requirements as to preservation of competition and of existing routes, where practicable, an amalgamation between the weak and the strong roads so as to produce systems which, while perhaps not as strong as some of the existing properties, will be stronger than the average of the weaker roads to be consolidated; and there is no conceivable way by which that objective may be attained except by allocating to the same system both strong and weak roads. It requires no demonstration in this report that system No. 6 as herein modified by us would be relatively too weak to meet the requirements of the statute were the Chesapeake & Ohio allocated elsewhere. While the financial strength of the Norfolk & Western is not indispensable to system No. 4, we believe that the greatest use of that property can be made and the interests of the public best served by its allocation to that system.

We are not persuaded that the public interest will suffer if the control of the rate structures from the northern and southern coal fields, and at Hampton Roads and the ports of New York, Philadelphia, and Baltimore are placed in the same systems, so long as those systems are genuinely competitive. It is this latter consideration which has given us the most concern with respect to these Pocahontas lines. We are satisfied that healthy competition will not be preserved as fully as possible if the ports on Hampton Roads and the southern coal fields are served by less than three systems in eastern territory. The allocation of the Virginian jointly to systems Nos. 4 and 6 would leave Hampton Roads and the principal southern coal fields with only two eastern systems, and one of those a system whose chief interest always has been in the northern fields and in the port or ports principally competitive with Hampton Roads. Moreover, the allocation of this property to its principal competitors would unnecessarily stifle competition. That the Virginian is highly competitive with the Chesapeake & Ohio and the Norfolk & Western, and that such competition if discontinued would injure important shipping interests now served by two or more of the Pocahontas lines, is definitely established upon this record.

We shall accordingly modify our plan with respect to the Virginian by allocating the entire property of this carrier to system No. 3.

The plan of the applicants would allocate the Interstate Railroad to system No. 4. It is now allocated jointly to the Wabash-Seaboard and the Southern systems. The Interstate asks that it be permitted to remain independent, but obviously the statute will not permit us to allocate this short line to a system by itself. We shall not disturb the present allocation of a half interest in this property to the Southern system, but shall modify our plan by allocating the other half interest to system No. 4.

Reading-Jersey Central

Under our plan the Reading and the Central Railroad of New Jersey, referred to as the Reading-Jersey Central system, are allocated to system No. 5, and the applicants do not suggest any change in this allocation. Philadelphia commercial organizations, represented by their joint executive transportation committee, however, suggest that the Reading-Jersey Central be not allocated to any trunk-line system, but be permitted to remain independent as a bridge or terminal system for use by all of the trunk-line systems serving Philadelphia.

For reasons stated elsewhere we can not interpret the statute as permitting our assent to the proposal that a road or system such as the Reading-Jersey Central may be allocated as an independent system simply because it might be strong enough financially to maintain itself in competition with other systems. Nor can we approve the allocation of the Reading-Jersey Central jointly to the four systems. These roads have been closely affiliated with the Baltimore & Ohio for years, and they are essential to the latter if system No. 5 is to perfect its new more direct route between the north Atlantic seaboard and the West via Williamsport, Pa., and the Reading to have entrance into New York. Their traffic-originating power and consequent financial strength are indispensable to the latter system if it is to compete successfully with the other systems in eastern territory. Under the modified final plan which we are herein approving, both Philadelphia and Baltimore will have the services of two highly competitive systems.

The Montour Railroad is proposed by the applicants to be allocated jointly to the four systems. In our final plan we regarded this property as a terminal line and left it unallocated. The Montour Railroad objects to the proposed allocation. This property, we believe, will find its greatest usefulness in the future as a terminal line in and around the Pittsburgh district, which will be served by all four of the trunk-line systems. Accordingly, we shall allocate it in equal parts to the four systems.

Upon all the facts of record, and in the light of the foregoing considerations, we hereby modify our final plan for the consolidation of the railway properties of the continental United States into a limited number of systems by elimin-

ating system No. 7, Wabash-Seaboard and by allocating (a) the entire property of the Chicago, Indianapolis and Louisville Railway Company equally to system No. 8, Atlantic Coast Line and system No. 9, Southern, and (b) the other railway properties in eastern territory, excluding New England, except (1) the properties of The Delaware and Hudson Railroad Corporation and certain short-line connections and (2) terminal properties not specifically allocated herein, as appears below.

The properties under exception (2) will be found under the head of "Terminal Properties" in our final plan of 1929 and will be left for future specific allocation.

Wherever in this modified plan a railway property is named, unless an exception is specifically made, it will be understood as including all subsidiary owned, leased, or operated lines.

Certain trackage rights between the systems are necessary in order to effectuate the purposes of the modified plan, and we have indicated under each system the principal instances of this kind.

This modified plan leaves unallocated the Seaboard Air Line Railway Company and a number of short-line connections which should go with it. The record is not sufficiently complete to warrant us in definitely allocating those properties at this time, and we shall leave them for the present as an independent system.

In our plan of 1929 the Kankakee & Seneca Railroad Company is left for future allocation as a terminal property. The applicants here propose its allocation jointly to the New York Central and the Chicago, Rock Island & Pacific Railway Company. In our modified plan set out below an undivided one-half interest in this property is allocated to system No. 3, and we hereby allocate the other one-half interest to system No. 19, Rock Island-Frisco.

The allocations of the so-called independent short lines proposed by the applicants are offered by them as necessarily tentative and subject to change by us, upon our own motion or upon application of the carriers involved, as might be found appropriate in the public interest. Excepting the short lines which, as above set forth, are allocated with the properties of the Delaware & Hudson Railroad Corporation, all of such independent short lines are herein allocated in accordance with the application, with three exceptions. The Valley Railroad Company is allocated to system No. 6, instead of to system No. 5, for the reasons hereinbefore stated. The Pittsburgh, Lisbon & Western Railroad Company is left with system No. 4, as at present, instead of being allocated, as requested by the applicants, jointly to systems Nos. 3 and 4, for the reason that it has no connection with any property herein allocated to system No. 3. The Dansville & Mount Morris Railroad Company is left with system No. 6, as at present, instead of being allocated, as requested by the applicants, jointly to systems Nos. 3 and 6, for the reasons that the Lackawanna, which is herein allocated to system No. 3, parallels and serves all of the important points served by this short line and is its principal competitor, and the best connection of the short line appears to be with the Erie, allocated to system No. 6.

In working out the modified plan herein approved it is expected that carriers will give careful consideration to the interests of their employees with the view of avoiding the imposition of undue hardships upon them in connection with the relocation and consolidation of shops and offices. When applications under section 5 of the act may be filed for our approval, the applicants will be expected to deal adequately with these questions and, to the extent necessary and warranted by the record, we will consider the imposition of such conditions as we may find to be proper and within our jurisdiction. If any doubt exists as to our jurisdiction in the premises it should be safeguarded by Congress.

System No. 3—New York Central

The New York Central Railroad Company.
The Akron and Barberton Belt Railroad Company (undivided one-fourth interest).
The Akron, Canton & Youngstown Railway Company (undivided one-fourth interest).
Alton & Eastern Railroad Company (undivided one-fourth interest).
Aliquippa and Southern Railroad Company.
Beaver Valley Railroad Company (undivided one-half interest).
Boston and Albany Railroad.
Boyne City, Gaylord and Alpena Railroad Company.
Cambria and Indiana Railroad Company (undivided one-half interest).
Campbell's Creek Railroad Company.
Central Indiana Railway Company (undivided one-half interest).
Cherry Tree and Dixonville Railroad Company (undivided one-half interest).
Chicago, Attica & Southern Railroad Company.
The Cincinnati Northern Railroad Company.
The Clarendon and Pittsford Railroad Company (undivided one-half interest).
The Cleveland, Cincinnati, Chicago and St. Louis Railway Company.
The Delaware, Lackawanna and Western Railroad Company (except the branch from Chenango Forks to Oswego, N. Y.).
Dexter & Northern Railroad Company.
Delaware Valley Railway Company.
Evansville, Indianapolis and Terre Haute Railway Company.
The Fairport, Painesville and Eastern Railroad Company (undivided one-third interest).
The Federal Valley Railroad Company.
Fonda, Johnstown and Gloversville Railroad Company.
Fulton Chain Railway Company.
Genesee and Wyoming Railroad Company (undivided one-fourth interest).
Glenfield & Western Railroad Company.
Grafton and Upton Railroad Company (undivided one-half interest).
Grasse River Railroad Corporation.
Indiana Northern Railway Company (undivided one-fourth interest).
Jamestown, Westfield & Northwestern Railroad Company.
Kanawha & Michigan Railroad Company.
Kanawha & West Virginia Railroad Company.
Kankakee and Seneca Railroad Company (undivided one-half interest).
Kelley's Creek and Northwestern Railroad Company.
Kelly's Creek Railroad Company.
Lackawanna & Wyoming Valley Railroad Company.
Lake Erie, Franklin & Clarion Railroad Company (undivided one-half interest).
The Lake Erie and Eastern Railroad Company.
The Lake Erie and Pittsburgh Railroad Company (undivided one-half interest).
The Lakeside and Marblehead Railroad Company.
The Lake Terminal Railroad Company (undivided one-third interest).
The Lorain and Southern Railroad Company.
Louisville and Jeffersonville Bridge and Railroad Company.
The Lowville and Beaver River Railroad Company.
Lehigh and New England Railroad Company (undivided one-fourth interest).
The Marcellus & Otisco Company, Incorporated.
The Massena Terminal Railroad Company (undivided one-half interest).
McKeesport Connecting Railroad Company (undivided one-third interest).
The Michigan Central Railroad Company.
The Monongahela Railway Company (undivided one-fourth interest).
Morristown & Erie Railroad Company (undivided one-half interest).
The Muncie Belt Railway Company.
Muncie and Western Railroad Company (undivided one-third interest).
Montour Railroad Company (undivided one-fourth interest).
Northampton and Bath Railroad Company (undivided one-fourth interest).
The Northern Ohio Railway Company (undivided one-fourth interest).
Norwood & St. Lawrence Railroad Company.
The Owasco River Railway (undivided one-half interest).
Peoria & Eastern Railway Company.
Pittsburgh, Chartiers & Youghiogheny Railway Company (undivided one-fourth interest).
The Pittsburgh and Lake Erie Railroad Company.
The Pittsburgh & West Virginia Railway Company, east of a point at or near Gould's Tunnel (undivided one-fourth interest).
Raquette Lake Railway Company.
Rutland Railroad Company (except the O. & L. C. Division).
Skaneateles Railroad Company.
South Buffalo Railway Company (undivided one-fourth interest).
Southern New York Railway, Incorporated.
Toledo & Ohio Central Railway Company.
The Troy Union Railroad Company (undivided one-third interest).
The Ulster and Delaware Railroad Company.
Unadilla Valley Railroad Company.
The Virginian Railway Company.
West Pittston-Exeter Railroad Company (undivided one-half interest).
West Shore Railroad Company.
Zanesville and Western Railway Company.
Trackage rights to system No. 3:
- Over Reading Company, Newberry Junction to Rupert, Pa.
- Over Lehigh and Hudson River Railway, Andover Junction, N. J., to Maybrook, N. Y.
- Over Pere Marquette Railway, Grand Rapids to Muskegon, Mich.
- Over Lehigh Valley Railroad, Avoca, Pa., to Waverly, N. Y.
- Over Pittsburgh & West Virginia Railway, Hopedale Junction, Ohio, to a point at or near Gould's Tunnel.
- Over Wheeling and Lake Erie Railway, Kent to Mogadore, Ohio; Dillonvale, Ohio, to a point near Unionvale, Ohio; and Adena to Neff, Ohio.

System No. 4—Pennsylvania

The Pennsylvania Railroad Company.
The Akron and Barberton Belt Railroad Company (undivided one-fourth interest).
The Akron, Canton & Youngstown Railway Company (undivided one-fourth interest).
Alton & Eastern Railroad Company (undivided one-fourth interest).
Arcade and Attica Railroad Corporation.
Baltimore and Eastern Railroad Company.
Baltimore, Chesapeake and Atlantic Railway Company.
Beaver Valley Railroad Company (undivided one-half interest).
Bellefonte Central Railroad Company.
Benwood and Wheeling Connecting Railway Company (undivided one-third interest).
Big Sandy and Cumberland Railroad Company.
Cambria and Indiana Railroad Company (undivided one-half interest).
Central Indiana Railway Company (undivided one-half interest).
Cherry Tree and Dixonville Railroad Company (undivided one-half interest).
Chesapeake Beach Railway Company.
Chesapeake Western Railway.
Conemaugh & Black Lick Railroad Company (undivided one-half interest).
Coudersport and Port Allegheny Railroad Company.
Cumberland and Pennsylvania Railroad Company (undivided one-half interest).
Dents Run Railroad Company.
Detroit, Toledo and Ironton Railroad Company.
Donora Southern Railroad Company.
The East Broad Top Railroad and Coal Company.
Etna and Montrose Railroad Company (undivided one-half interest).
Franklin & Pittsylvania Railway Company.
Genesee and Wyoming Railroad Company (undivided one-fourth interest).
Hickory Valley Railroad Company.
The Huntingdon and Broad Top Mountain Railroad and Coal Company.
Indiana Northern Railway Company (undivided one-fourth interest).
Interstate Railroad Company (undivided one-half interest).
Johnstown and Stony Creek Rail Road Company (undivided one-half interest).
Kane and Elk Railroad Company.
Kishacoquillas Valley Railroad Company.
The Lake Erie and Fort Wayne Railroad Company.
Lake Erie, Franklin & Clarion Railroad (undivided one-half interest).

Ligonier Valley Rail Road Company.
The Long Island Rail Road Company.
Lehigh and New England Railroad Company (undivided one-fourth interest).
Marion Railway Corporation.
Maryland and Delaware Coast Railway Company.
McKeesport Connecting Railroad Company (undivided one-third interest).
The Monongahela Railway Company (undivided one-fourth interest).
Muncie and Western Railroad Company (undivided one-third interest).
Montour Railroad Company (undivided one-fourth interest).
New Jersey, Indiana & Illinois Railroad Company.
New Haven & Dunbar Railroad Company (undivided one-half interest).
The New York and Long Branch Railroad Company (undivided one-half interest).
The New York Connecting Railroad Company (undivided one-half interest).
Norfolk and Western Railway Company.
The Northern Ohio Railroad Company (undivided one-fourth interest).
Northampton and Bath Railroad Company (undivided one-fourth interest).
The Ohio River and Western Railway Company.
Patapsco & Back Rivers Railroad Company (undivided one-half interest).
Pennsylvania and Atlantic Railroad Company.
Philadelphia and Beach Haven Railroad Company.
Philadelphia and Camden Ferry Company.
Pittsburgh, Chartiers and Youghiogheny Railway Company (undivided one-fourth interest).
The Pittsburgh, Lisbon & Western Railroad Company.
Pittsburgh & Susquehanna Railroad Company.
The Pittsburgh & West Virginia Railway Company, east of a point at or near Gould's Tunnel (undivided one-fourth interest).
Rariton River Rail Road Company (undivided one-half interest).
Rosslyn Connecting Railroad Company.
Scootac Railway Company.
Sheffield and Tionesta Railway Company.
South Buffalo Railway Company (undivided one-fourth interest).
Steelton & Highspire Railroad Company (undivided one-half interest).
The Stewartstown Railroad Company.
The Strasburg Railroad Company.
Susquehanna River and Western Railroad Company.
St. Louis and Hannibal Railroad Company.
Toledo, Peoria & Western Railroad.
The Tuckerton Railroad Company.
Tuscarora Valley Railroad Company.
Wabash Railway Company.
The Washington, Brandywine and Point Lookout Railroad Company.
Waynesburg and Washington Railroad Company.
Western Allegheny Railroad Company.
West Jersey and Seashore Railroad Company.
Wilkes-Barre Connecting Railroad Company (undivided one-half interest).
The Winfield Railroad Company.
Winston-Salem Southbound Railway Company (undivided one-half interest).
Trackage rights to system No. 4:
Over New York Central Railroad, Newark to Genesee Junction, N. Y., or over Lehigh Valley Railroad as shown below; Cleveland, Ohio, to connection with Lorain, Ashland & Southern Railroad at Lorain, Ohio; and Wellington to Crestline, Ohio.
Over Baltimore and Ohio Railroad, Girard to Haselton, Ohio; and Warwick to Greenwich, Ohio.
Over Lehigh Valley Railroad (National Docks Railway), Waldo Avenue, Jersey City, N. J., to connection with Edgewater Branch near the Morris Canal; over Edgewater Branch from National Docks Railway to connection with proposed tracks on Jersey City water front; and Phelps Junction to Wadsworth Junction, N. Y., or over New York Central Railroad as shown above.
Over Pere Marquette Railway, LaCrosse to Hanna, Ind.

System No. 5—Baltimore & Ohio

The Baltimore and Ohio Railroad Company.
The Akron and Barberton Belt Railroad Company (undivided one-fourth interest).
The Akron, Canton & Youngstown Railway Company (undivided one-fourth interest).
Alton & Eastern Railroad Company (undivided one-fourth interest).
The Ann Arbor Railroad Company.
Atlantic City Railroad Company.
The Baltimore and Ohio Chicago Terminal Railroad Company.
Benwood and Wheeling Connecting Railway Company (undivided one-third interest).
The Brownstone and Middletown Railroad Company.
The Buffalo Creek & Gauley Railroad Company.
Buffalo, Rochester and Pittsburgh Railway Company.
Buffalo & Susquehanna Railroad Corporation.
The Castleman River Railroad Company.
The Central Railroad Company of New Jersey.
The Chaffee Railroad Company.
Chestnut Ridge Railway Company.
The Chicago and Alton Railroad Company.
Conemaugh & Black Lick Railroad Company (undivided one-half interest).
Cornwall Railroad Company.
Cumberland and Pennsylvania Railroad Company (undivided one-half interest).
The Detroit and Toledo Shore Line Railroad Company.
East Berlin Railroad Company.
Emmitsburg Railroad Company.
Etna and Montrose Railroad Company (undivided one-half interest).
The Fairport, Painesville and Eastern Railroad Company (undivided one-third interest).
Genesee and Wyoming Railroad Company (undivided one-fourth interest).
The Ironton Railroad Company (undivided one-half interest).
Johnstown and Stony Creek Rail Road Company (undivided one-half interest).
The Lake Terminal Railroad Company (undivided one-third interest).
Lehigh and Hudson River Railway Company.
Lehigh and New England Railroad Company (undivided one-fourth interest).
Manistique and Lake Superior Railroad Company.
Maryland and Pennsylvania Railroad Company.
McKeesport Connecting Railroad Company (undivided one-third interest).
The Monongahela Railway Company (undivided one-fourth interest).
Mount Hope Mineral Railroad Company.
Mount Jewett, Kinzua and Riterville Railroad Company.
Montour Railroad Company (undivided one-fourth interest).
New Haven & Dunbar Railroad Company (undivided one-half interest).
The New York and Long Branch Railroad Company (undivided one-half interest).
Northampton and Bath Railroad Company (undivided one-fourth interest).
The Northern Ohio Railway Company (undivided one-fourth interest).
Patapsco & Back Rivers Railroad Company (undivided one-half interest).
People's Railway Company.
Perkiomen Railroad Company.
Philadelphia, Bethlehem and New England Railroad Company (undivided one-half interest).
Pittsburgh, Chartiers & Youghiogheny Railway Company (undivided one-fourth interest).
The Pittsburgh & West Virginia Railway Company, east of a point at or near Gould's Tunnel (undivided one-fourth interest).
Port Reading Railroad Company.
The Preston Railroad Company.
Quakertown and Bethlehem Railroad Company.
Rahway Valley Company.
Raritan River Rail Road Company (undivided one-half interest).
Reading Company.
Rowlesburg & Southern Railroad Company.
South Buffalo Railway Company (undivided one-fourth interest).
The Staten Island Rapid Transit Railway Company.
Steelton & Highspire Railroad Company (undivided one-half interest).
Stone Harbor Railroad Company.
Strouds Creek and Muddlety Railroad Company.
Tionesta Valley Railway Company.
Upper Merion and Plymouth Railroad Company.
The Ursina and North Fork Railway Company.
Valley River Railroad Company.
Western Maryland Railway Company.
West Virginia Midland Railway Company.
West Virginia Northern Railroad Company.
Wharton and Northern Railroad Company.
Wildwood and Delaware Bay Shore Line Railroad Company.
Winchester & Wardensville Railroad Company.
Trackage rights to system No. 5:
Over New York Central Railroad, Monroeville to Toledo, Ohio, or over Wheeling and Lake Erie Railway as shown below; and Charleston, W. Va., to Kanauga, Ohio.
Over Delaware, Lackawanna and Western Railroad, Rupert to Plymouth Junction, Pa.
Over Pennsylvania Railroad, Sinnemahoning (or Driftwood) to Williamsport, Pa.; West Brownsville Junction, Pa., to connection with West Side Belt Railroad at or near Clairton, Pa.
Over Wabash Railway, Romulus to Detroit, Mich.
Over Chesapeake and Ohio Railway, Kanauga to Dundas, Ohio.
Over Pere Marquette Railway, Toledo, Ohio, to Romulus, Mich.; and Detroit, Mich., to connection with Ann Arbor Railroad at Annpere, Mich.
Over Wheeling and Lake Erie Railway, Terminal Junction to Yorkville, Ohio; Zanesville to Canton (or Cuyahoga Falls), Ohio; and Creston to Toledo, Ohio, or over New York Central Railroad as shown above.
Over Wheeling and Lake Erie Railway and Wheeling & Lake Erie Belt, connection between Baltimore and Ohio Railroad and Wheeling & Lake Erie Belt and between Baltimore and Ohio Railroad and Michigan Central, Pere Marquette, Ann Arbor and Detroit and Toledo Shore Line via the Wheeling & Lake Erie Belt at Toledo, Ohio; and connection to reach the tracks of the Cleveland Union Terminals Company at Cleveland, Ohio.

System No. 6—Chesapeake & Ohio-Nickel Plate

The Chesapeake and Ohio Railway Company.
The Akron and Barberton Belt Railroad Company (undivided one-fourth interest).
The Akron, Canton & Youngstown Railway Company (undivided one-fourth interest).
Alton & Eastern Railroad Company (undivided one-fourth interest).
Arcadia and Betsey River Railway Company.
Bath and Hammondsport Railroad Company.
Benwood and Wheeling Connecting Railway Company (undivided one-third interest).
Bessemer and Lake Erie Railroad Company.
Big Sandy and Kentucky River Railway Company.
The Buffalo Creek Railroad Company.
Chesapeake & Ohio Railway Company of Indiana.
Chicago and Eastern Illinois Railway Company.
Chicago and Erie Railroad Company.
Chicago, Springfield & St. Louis Railway Company.
Chicago & Illinois Midland Railway Company.
The Dansville and Mount Morris Railroad Company.
The branch of The Delaware, Lackawanna and Western Railroad Company from Chenango Forks to Oswego, N. Y.
Detroit and Mackinac Railway Company.
Detroit, Caro and Sandusky Railway Company.
East Jordan & Southern Railroad Company.
East Kentucky Southern Railway Company.
Erie Railroad Company.
The Euclid Railroad Company.
The Fairport, Painesville and Eastern Railroad Company (undivided one-third interest).
Genesee and Wyoming Railroad Company (undivided one-fourth interest).
The Hocking Valley Railway Company.
The Ironton Railroad Company (undivided one-half interest).
Jacksonville & Havana Railroad Company.
The Kanawha Central Railroad Company.
Kanawha, Glen Jean and Eastern Railroad Company.
The Lake Terminal Railroad Company (undivided one-third interest).
Lehigh and New England Railroad Company (undivided one-fourth interest).
Lehigh Valley Railroad Company.
The Lorain & West Virginia Railway Company.
Ludington & Northern Railway.
Manistee and Northeastern Railway Company.
Middletown and Unionville Railroad Company.
Morehead and North Fork Railroad Company.
The Monongahela Railway Company (undivided one-fourth interest).
Montour Railroad Company (undivided one-fourth interest).
Morristown & Erie Railroad Company (undivided one-half interest).
Muncie and Western Railroad Company (undivided one-third interest).
Nelson & Albemarle Railway Company.
The New Jersey and New York Railroad Company.
New York and Pennsylvania Railway Company.
The New York, Chicago and St. Louis Railroad Company.
New York, Susquehanna and Western Railroad Company.
Northampton and Bath Railroad Company (undivided one-fourth interest).
The Northern Ohio Railway Company (undivided one-fourth interest).
The Owasco River Railway Company (undivided one-half interest).
Pere Marquette Railway Company.
Philadelphia, Bethlehem and New England Railroad Company (undivided one-half interest).

Pittsburgh, Chartiers & Youghiogheny Railway Company (undivided one-fourth interest).
The Pittsburgh & West Virginia Railway Company, east of a point at or near Gould's Tunnel (undivided one-fourth interest).
The Pittsburgh & West Virginia Railway Company, west of a point at or near Gould's Tunnel.
The Pittsburg, Shawmut and Northern Railroad Company.
The Pittsburg & Shawmut Railroad Company.
Port Huron and Detroit Railroad Company.
Prattsburgh Railway Corporation.
South Buffalo Railway Company (undivided one-fourth interest).
Sterling Mountain Railway Company.
Susquehanna and New York Railroad Company.
Unity Railways Company.
Valley Railroad Company.
Virginia Central Railway.
West Pittston-Exeter Railroad Company (undivided one-half interest).
The Wheeling and Lake Erie Railway Company.
Williamsport & North Branch Railway Company.
Wilkes-Barre and Eastern Railroad Company.
Winifrede Railroad Company.
Trackage rights to system No. 6:
Over Delaware, Lackawanna and Western Railroad, from Lehigh Valley Railroad connection at or near Pittston, Pa., via Kingsland to Hoboken, N. J. (including right to joint use of passenger facilities at Hoboken and right to make connection with the Erie Railroad at or near Croxton Yard for freight service); from Kingsland, via Kingsland cut-off, to a point of connection with the Pennsylvania Railroad passenger line at or near Kearney Junction (including the right to make connection with the Greenwood Lake Division of the Erie Railroad at or near Arlington); and from Binghamton to Chenango Forks, N. Y.
Over Michigan Central Railroad, St. Clair Springs to Richmond, Mich. (or lease).
Over Kanawha & Michigan Railroad, Armitage to Hobson, Ohio.
Over Pennsylvania Railroad, Indianapolis, Ind., to Louisville, Ky.; from connection with the Lehigh Valley Railroad at or near Newark, N. J., to Pennsylvania Railroad passenger station on Manhattan Island; and West Brownsville Junction, Pa., to connection with the West Side Belt Railroad at or near Clairton, Pa.
Over Baltimore and Ohio Railroad, Dayton to Cincinnati, Ohio; and Butler to New Castle, Pa.
Over Buffalo, Rochester and Pittsburgh Railway (including Allegheny & Western Railway), Butler, Pa.; through Punxsutawney and DuBois to Clearfield, Pa.; and LeRoy to Rochester, N. Y.; including joint use of Rochester terminals and Rochester Belt Line and branch of the Belt to Charlotte Docks.
Over Lehigh and Hudson River Railway, all or any part thereof.

Individual Opinions

Extracts from the separate opinions follow:

Lewis, *Commissioner,* concurring:

While I would have preferred, and have voted for, other changes, and while new problems of the grouping of the Seaboard and Mobile & Ohio are created, and while the working out of the problem of New England is in the future, it is my opinion that the proposal as now modified by us is in the public interest and that the 4-system plan is the available agency to that strengthening of the rail transportation system which was the genesis of the consolidation policy of Congress. I concur also in the analysis that with two large systems already perfected in the territory, the remaining railways can not be grouped into several more systems that would meet the requirements as the financial balance under competitive rates.

Brainerd, *Commissioner,* concurring in part:

I concur herein except that I am of the opinion that it would accord much more with the public interest to simply deny at this time the application in so far as it seeks a reallocation of (a) the New England bridge lines including the Delaware & Hudson, Lehigh & Hudson River, and Lehigh & New England, and (b) the Western Maryland and Norfolk & Western. I also think that there is merit in the suggestion of Philadelphia interest that the Lehigh Valley be accorded trackage rights into Philadelphia.

Lee, *Commissioner,* concurring in part:

I approve the report except that, in my judgment, it would be more in accord with the public interest to leave the Delaware & Hudson with the Boston & Maine; the Western Maryland and the Detroit & Toledo Shore Line, in its entirety, should not be allotted to the Baltimore & Ohio; and, as requested by Philadelphia, the Lehigh Valley should be accorded trackage rights over the Reading into that city.

Mahaffie, *Commissioner,* concurring in part:

I concur in the chief features of the majority report, not because I think it represents the best possible plan, but because I consider it, on the whole, an improvement on the former plan, so far as this territory is concerned. I do not agree that on this record we are justified in dismembering system No. 1, Boston & Maine, by taking from it the Delaware & Hudson, and setting that carrier up as an independent system. The allocation of the Detroit & Toledo Shore Line to the Baltimore & Ohio, in my opinion, is improper. The Nickel Plate has long owned a half interest in this property. From a traffic standpoint it is closely allied to the Nickel Plate. I see no justification for disrupting that relationship.

Eastman, *Commissioner,* dissenting:

This is a matter upon which it is difficult to act under existing conditions without influence of extraneous considerations. The people of the country are either fighting to bar the wolf from the door or they are struggling inside the threshold to keep his fangs from their throats. They have little time or money to spend on railroad consolidation plans. There is also an epidemic of hope that some magic move will restore confidence and set the wheels of industry in motion. The promoters of this 4-system plan with most powerful aid have cultivated the hope that approval of the plan will be such a magic move. These circumstances have allayed much of the opposition which might otherwise have been voiced, although they have availed to produce of record no active public support.

Congress directed the commission to prepare a plan for the consolidation of the railroads of the country into a limited number of systems. Events suggest that it would have been simpler to have asked a few of the larger railroads to agree upon a plan for the distribution of the lesser railroads among them. The virtue most persistently urged in support of this 4-system plan is that it is a "practical" plan which can be accomplished, because the four leading railroad executives of eastern territory have, after many conferences, agreed upon it. In fact, the plan has in large part already been accomplished. This has been done at great cost and mostly without our approval. We have found that to a very considerable extent it was done illegally, and we could with propriety have spread this finding over much more ground. The fact remains that many important and strategic parts of the plan have been accomplished. With these trump cards in hand the four executives went into conference. Their agreement was shaped accordingly, and upon it is now fixed the stamp of commission approval. . . .

These system-making operations through holding companies and the like violated principles of sound finance as well as the law. The record contains startling comparisons of the prices paid for stocks with their present market values. Much of the extraordinary shrinkage is due, of course, to the economic depression. More important are the facts that in many instances the prices paid were very high even when measured by the inflated standards prevailing at the time when they were paid; that these purchases had the effect of accelerating the current inflation of security prices; that large debts were incurred in the acquisition of mere stock equities; that surplus funds were so used which ought to have been conserved; and that investors were enticed into the perilous holding-company field. . . .

Returning to the 4-system plan and its effect upon present conditions, it should be made clear that all that we are now asked to do is merely to modify our previous plan. Applicants have not sought authority to do a single thing. Before any part of the plan can legally be consummated, a new application for authority to act must be filed with us; and before we can grant such authority, it must be shown anew, notwithstanding that what is proposed is consistent with the plan, that it is in the public interest, including the terms and conditions, and that the latter are fair and reasonable.

As already indicated, the proposed systems have in large part been brought into being without our approval and regardless of law. Applicants may be willing to rest there for the present, although the antitrust statutes will remain in force and effect unless orders of approval are obtained from us. As for the parts of the plan which remain to be accomplished, including the taking over of the numerous short lines, no steps can now be taken which require substantial expenditures of cash. Applicants have no present means of obtaining capital funds in any large amount except from the Government. It is not certain that all of these four systems will be financially able to hang together.

Another aspect of this 4-system plan deserves emphasis. It is our duty to prepare a comprehensive and well-balanced consolidation plan for the entire country, not for eastern territory alone. But the proponents of the 4-system plan, i. e., the four executives, have proceeded, with pardonable egotism, as if the remainder of the country did not exist. Their plan, which has now largely become the commission's plan, carves a line around eastern territory, excluding New England, and leaves on the other side of the line several amputated and bleeding stumps without benefit of systems. One is the Seaboard Air Line, in receivership and left to shift for itself. Another is the Mobile & Ohio, likewise in receivership. A third is the Chicago & Northwestern, left in solitude in western territory. On the east are the New England systems, deprived of most of the so-called bridge lines penetrating trunk-line territory and the anthracite coal regions which were grouped with them in our former plan.

In addition, in a prior proceeding we have ourselves, by a divided vote, dismembered system No. 10, Illinois Central, by turning the Cotton Belt over to the Southern Pacific, thus leaving the present Illinois Central system with no contemplated additions except more or less impecunious short lines and the Minneapolis & St. Louis.

Moreover, certain other obvious facts have been disregarded, completely or in effect, in approving the 4-system plan. The cardinal principle of this plan, so we are told, is that the Pennsylvania system is already so large that no more than four systems can be maintained in eastern territory, if they are to be of comparable strength and financial stability. Nevertheless, to this Pennsylvania system the plan adds the large Wabash system, extending to Kansas City and Omaha, the Detroit, Toledo & Ironton, and half or quarter interests in other important railroads. As a result of these gratuitous additions, the Pennsylvania system will remain dominant in size, and the cardinal principle goes into the discard.

The railroad situation is now in a state of transition, and future wise policies with respect to the railroads are not yet wholly clear. It is not at all impossible that a policy may prove desirable in the public interest which will involve a greater restriction of competition among railroads than the law now contemplates, but not, in my judgment, along the lines of the 4-system plan.

Present Extra Fare Practice O. K.'d By I. C. C.

(Continued from page 144)

been removed, the commission has denied the fourth-section applications set for hearing with the investigation.

Subsequent to the hearings in connection with the investigation, the report shows, extra fares except those on trains operating between New York, Chicago, New Orleans, and Boston; between Boston and Chicago; San Francisco and Portland; and Chicago and Los Angeles. were cancelled, and on April 24 the eastern lines, excepting the Pennsylvania as to the "Broadway Limited" and the New York Central as to the "Twentieth Century Limited," cancelled all extra fares between New York and Chicago and other points in central territory.

This investigation was instituted by the commission about three years ago, following the filing of the fourth-section applications. The examiners recommended continuance of the extra-fare plan for definitely superior service but took the position that the proportion of extra-fare service should not be such as to displace the regular service and recommended a finding that the number of extra-fare trains should not exceed 33⅓ per cent of the total number of through services on trains carrying equipment of the standard generally in use and operated on reasonably fast schedules at equally convenient hours over the same routes between the same points. They also recommended a finding that extra fares are not justified for combination service, i.e., service which requires transfer en route. Exceptions to the report were filed by certain of the eastern lines stating that while all of the matters condemned in the proposed report had since been eliminated, they did not acquiesce in the views expressed by the examiners.

Before April 24, the report says, between New York and Chicago and between those cities and intermediate points in central territory, numerous extra fare trains were operated daily, while between other points where extra fares are charged there was and is generally but one such train daily in each direction. The great body of extra fare travel is between New York and Chicago over the lines of the New York Central and the Pennsylvania, and the evidence presented was directed principally to this feature of the proceeding. The total net extra fare revenue of the Pennsylvania in 1928 was $2,562,951 and of the Central $3,286,128.

Following are some extracts from the commission's report:

During the period between October, 1881, and April 24, 1932, the number of daily through services between New York and Chicago as to which extra fares applied increased from one train in each direction to a total of 60 through services, representing two-thirds of all available through services. In addition to extra fares for through service such fares in most instances applied for broken or combination service where the journey was completed in less than 28 hours, and passengers desiring to leave and arrive at convenient hours were required either to pay extra fares or to travel on very slow trains. Prior to the latter date a similar situation existed with respect to the through service between New York and the eight other time points in central territory as to which there were on an average 25 through services daily, two-thirds of which were also subject to extra fares. On the latter date the eastern lines, excepting the Pennsylvania as to the Broadway and the Central as to the Century, canceled all extra fares, at which time the scheduled running time of these trains, which were continued as all-Pullman trains between New York and Chicago, was reduced to 18 hours, and the extra fare was increased to $10. The same fare was established on the Century between Boston and Chicago. This fare, which is $2 less than that previously applicable for an 18-hour service between New York and Chicago, is not refundable for delay. From and to intermediate points as to which the above trains are scheduled to stop, the fares are graded so as not to violate the provisions of the fourth section. The Broadway is scheduled to leave New York at 3:30 P.M. and arrive at Chicago at 8:30 A.M. the following day. The Century is scheduled to leave New York at 3 P.M. and arrive at Chicago at 8:00 A.M. the following day. Both of these trains are scheduled to leave Chicago at 1:30 P.M. and arrive at New York at 8:30 A.M. the following day. There is now adequate non-extra fare through service between New York and Chicago at equally convenient hours, the fastest time of the non-extra fare trains being 21 hours, on which there was formerly an extra fare of $8.40. The average rate of speed of the Broadway and Century is 52 miles per hour as compared with an average rate of speed of 45 miles an hour of the 21-hour trains.

Prior to the cancellation of the extra fares referred to, there were numerous instances where the eastern lines maintained extra through fares but none to or from directly intermediate points, and a traveler by purchasing tickets to and from such intermediate points paid a lower amount for his through trip than the traveler who purchased a through ticket, although both of these passengers traveled on the same train. A considerable portion of the testimony introduced related to this feature of the proceeding; also to the propriety of the standard time basis established by the eastern carriers and formerly used by them in constructing extra fares. As both of these features of the proceeding have been eliminated by the cancellation of extra fares constructed upon the time basis, it is unnecessary to discuss them.

While some evidence was introduced with respect to the cost of operating extra fare trains the classification of respondents' accounts is not sufficiently detailed to show the cost of operating such trains compared with non-extra fare trains. Because of this and of the nature of the elements which distinguish a superior service from service of ordinary character, it is extremely difficult to set a standard by which charges for such superior service may be measured. Outstanding elements stressed by the respondents in support of charging of extra fares are the additional number of employees on extra fare trains, operating conditions as they affect train speed, loss of intermediate passenger revenue, and luxurious character of equipment of extra fare trains, such as club, lounge, and observation cars, which, while adding to the comfort of passengers, lessens the amount of revenue space. While the operating and other conditions between the various points where extra fares are charged differ considerably and it does not appear feasible to prescribe a rule of general application to govern the measure of extra fares upon a mileage basis or otherwise, two important basic principles should serve as a guide in the establishment and maintenance of extra fare service and the determination of the extent to which extra fares may lawfully be charged. The first is that to justify an extra fare in addition to the basic passenger and Pullman fares and surcharges, the service upon which it is based should be definitely superior to that which is generally furnished. The second is that services to which extra fares apply are justified only as supplemental or alternative services. Both of these

principles were observed when the New York-Chicago extra fare service was first established and are now observed in connection with this service as well as that afforded by the other extra fare trains now in operation. These trains, which constitute a very small percentage of such service between points where operated, there generally being but one each way daily, are of a de luxe character, are operated upon fast schedules, and the non-extra fare service, which is not only ample in amount but of high grade character, is provided within brief intervals before and after the departure of the extra fare trains. Consequently, alternative through service without extra fare is available to the public at equally convenient hours.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended July 16 amounted to 504,094 cars. This was an increase of 87,144 cars as compared with the week before, which included the Fourth of July holiday, and also an increase of 14,821 cars as compared with the week before the holiday. As compared with the corresponding week of last year it was a decrease of 253,895 cars, and as compared with 1930 it was a decrease of 424,177 cars. Loading of grain and grain products showed an increase of nearly 12,000 cars as compared with the week of July 2 but reductions were shown as to coke, forest products and merchandise. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading

Week Ended Saturday, July 16, 1932

Districts	1932	1931	1930
Eastern	111,274	165,172	205,642
Allegheny	95,520	147,132	188,812
Pocahontas	29,895	47,002	53,853
Southern	71,043	103,413	117,848
Northwestern	61,440	107,104	144,512
Central Western	89,985	123,830	142,934
Southwestern	44,937	64,336	74,670
Total Western Districts	196,362	295,270	362,116
Total All Roads	504,094	757,989	928,271
Commodities			
Grain and Grain Products	42,218	60,824	64,155
Livestock	16,594	19,594	22,351
Coal	70,145	108,972	136,805
Coke	2,578	4,548	8,530
Forest Products	14,930	27,742	42,165
Ore	6,638	36,900	62,009
Merchandise L. C. L.	167,307	215,539	233,173
Miscellaneous	183,684	283,870	359,083
July 16	504,094	757,989	928,271
July 9	416,950	762,444	915,985
July 2	489,273	667,630	792,053
June 25	498,799	759,363	936,690
June 18	518,409	739,094	920,645
Cumulative Total	15,033,188	20,540,918	25,061,130

The freight car surplus on June 30 was 772,565 cars, an increase of 15,146 cars as compared with the number on June 14. This included 386,930 box cars, 313,708 coal cars, 31,208 stock cars and 13,340 refrigerator cars.

Car Loading in Canada

Car loadings in Canada for the week ended July 16, amounting to 37,699, were 1,354 cars less than for the previous week and 10,143 cars less than for the corresponding week last year. After adjusting for seasonal variations, however, the index number was only slightly below that of the previous week, viz: 61.91 for last week and 61.93 for the previous week.

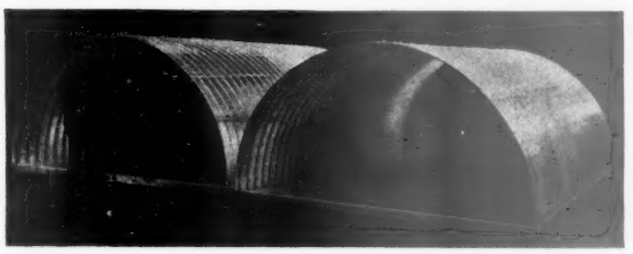
	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
July 16, 1932	37,699	15,411
July 9, 1932	39,053	13,921
July 2, 1932	36,272	15,784
July 11, 1931	47,842	20,727
Cumulative Totals for Canada		
July 16, 1932	1,151,881	558,528
July 11, 1931	1,350,431	758,804
July 12, 1930	1,646,832	975,872

Armco Multi-Plate Pipe

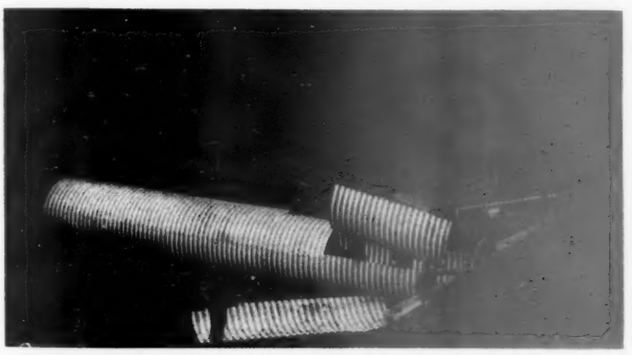
A NEW form of corrugated iron pipe, known as Multi-Plate pipe, which is manufactured in curved sections and assembled in the field instead of in the shop by the usual fabrication methods, has been developed by the Armco Culvert Manufacturers Association, Middletown, Ohio. Originally the pipe was applied only to the fabrication of culverts of the usual full-circle type, but more recently "part-circle" Multi-Plate pipe has been developed, consisting of a semi-circular arch made from the curved plates and provided with a floor of flat plates. The newest development is designed for use under shallow fills where the headroom is limited but where a large drainage opening is necessary.

Multi-Plate pipe is similar in appearance to the usual corrugated metal pipe except that it is made of heavy plates strengthened with larger corrugations and is assembled in the field by bolting the plates together. In the erection of full-round pipe, 6, 7, 8 or more plates are bolted together to form 90, 105, 120-in. or larger diameter pipe respectively. When bolting the plates together, the circumferential joints are staggered so that continuous pipe in any multiple of five feet can be obtained without a circumferential seam. With this type of pipe it is pointed out that a balanced design is obtained by using heavier plates in the bottom where the wear occurs.

Part-circle Multi-Plate pipe is manufactured with 3, 4 and 5 arch plates which form spans ranging from 90 to 220 in. at the bottom and in multiples of five feet in length. The arch plates are available in any of the three standard gages, 3, 5 or 7. The base of the culvert consists of transverse sections 30 in. wide made of plain (uncorrugated) plates, that have been formed to provide 4½ in. flanges on all four sides. The end flanges, which are turned up, provide the means for a bolted connection to the arch, while the side flanges, which are turned down, stiffen the plates to resist the foundation pressure. A 14½-in. apron plate with a 3-in. curtain wall is provided at each end of the pipe. All plates, both flat and corrugated, are of Armco ingot iron.



Illustrating Part-Circle Pipe Assembled From Multi-Plates



Assembling Full-Round Multi-Plate Pipe for Installation Under a Railroad Embankment

Odds and Ends . . .

Another Railroad "Fan"

The hedge around the home of J. L. Davis at Jersey Shore, Pa., is trimmed to resemble a locomotive and three passenger coaches.

On Time All the Time—Nearly

When the Missouri-Kansas-Texas, during April, moved 6813 l.c.l. merchandise cars and got all but 35 of them to their destinations exactly on time, the operating department thought it was doing pretty well. But it did even better in May. In the latter month, 6808 l.c.l. merchandise cars were delivered on time and only 5 were late. If our arithmetic is dependable, the percentage of on-time performance in May was 99.93—quite a record.

Gardens on Railroad Land

In a praise-worthy effort to relieve conditions arising from lack of employment for railway workers, a number of roads have set aside portions of their land for use by their former employees as vegetable gardens. Naturally these offers have been promptly accepted. On the Illinois Central System, for example, approximately 360 furloughed employees have applied for and received permission to cultivate land furnished by the railroad. The same thing was done by the Illinois Central in 1931, but the response this year has been much more widespread.

Nothing Slow About These Yale Men

The engine forces of the St. Louis-San Francisco at Yale, Tenn., made quite a record on June 13 in the handling of engine No. 1525, of the 4-8-2 type, when the driving wheels were removed, preparatory to the turning of the tires, in 3 hr. 5 min. The engine came into the roundhouse under its own steam at 11:35 a.m. It was stripped of its rods and the last pair of driving wheels was set on the ground at 4 p.m. The record was made by a machinist, a helper on the outside work and three helpers in the pit, two of them inexperienced in drop pit work. They were egged on by E. F. Tuck, general foreman, and S. M. Ferguson, back shop foreman, in person.

Unique Buildings

With Chicago's 1933 World's Fair getting closer and closer, it is perhaps not too early to mention that feature of the exposition which will be of greatest interest to railway men. It is the Travel and Transport building in which a number of unusual ideas have been developed. The dome of the building is made of plates, which, sliding over each other, enable the dome to expand and contract with changes in weather conditions. The dome is upheld by supporting cables attached to tall steel towers, these cables causing the affair to look like a giant spider web. It is said to be the first important application to architecture of the principle of support used in a suspension bridge. As a result of this design, no pillars or other supports are needed to hold the dome up. The dome is 125 ft. high and 200 ft. across, and has striking modernistic lines.

Obliging Passengers

Committee No. 8 of the American Association of Railroad Superintendents, assigned the subject "Practical Measures for Reducing Stops," will be overlooking a good bet if it fails to give attention to one such measure which has worked out quite successfully on the Pacific division of the National Railways of Mexico. Incidentally, J. J. Franco, chairman of the committee, is general superintendent of the National Railways of Mexico, and has jurisdiction over this very division. Our Mexican correspondent recently made a trip over the narrow-gage line which climbs a mountain on a four per cent grade to reach Toluca, from Mexico City. While standing at the rear end of the train he was suddenly surprised to see a sack of food bounding along near the track. Turning just in time, he then saw an Indian passenger hop gracefully from the moving train, walk back to his sack of Mexico City purchases, hoist it to his shoulder, and trudge off up the mountain to his home, some distance from the track. There are plenty of stations along this line, but the Indians disregard them utterly. They prefer to take their chances of rolling into the ditch in alighting from the moving train as it crawls up the heavy grade, rather than to wait for the next station stop.

Oldest Train Celebrates Eighty-Fifth Birthday

When a passenger train gets to be 85 years old, it deserves more than passing mention. That is the age of the New York, New Haven & Hartford's Fall River Line Boat Train, said to be the oldest regularly scheduled train in the United States and probably in the world. Recently the train began its eighty-sixth year of daily service between Boston, Mass., and Fall River, carrying passengers to and from the New York-Fall River steamers.

The first trip of this famous train was made from the old Kneeland Street station of the Old Colony Railroad (now part of the New Haven) on May 19, 1847. It left Boston at 5 p. m. The train still leaves Boston at 5 p. m., eastern standard time, although it now starts from South station. The train has been run on practically the same schedule during the entire 85 years of its existence. The original route of the Fall River Line Boat Train was from Boston to Fall River, via Middleboro, but in 1866 the train was transferred from the "old road" (via Middleboro) to the "new road" (via Taunton, Dean street).

It was at about this time that the so-called "English coaches" were placed in service on the train. The idea originated with Joseph Holmes, a son of President Holmes of the Old Colony, who became impressed with the idea of getting an English coach on the Boat Train while on a trip to England. The suggestion was approved by his father and two coaches were built at the Old Colony's South Boston shops, duplicating the English design. They were a great novelty and were popular for a number of years, being discontinued only when parlor cars came into use.

On June 16, 1890, the Boat Train was transferred from the Kneeland Street station to Park Square station, from which it continued to run until transferred to the South station on September 10, 1899. The Boat Train was one of the first in the country to have air brakes, automatic couplers, steam heat and vestibule cars. The Old Colony's drawing-room cars, Pilgrim and Puritan, were among the first parlor cars in the country. They were succeeded by the Pullman vestibule parlor cars, Violet and Pansy, which were the first Pullman cars on the train. In 1922 the first all-steel coaches were placed in service on the train and they were followed in 1931 by the first of the present de luxe coaches, with individual seats, roller bearings, thermostatic control of heat and individual window ventilation.

It has never been definitely established who was the first conductor of the train in 1847, although it is said to have been Charles B. Stickney of Fall River. The first conductor of whom there is definite record was Thomas J. Claflin, who had charge of the train from 1853 to 1864. He was followed by Asa R. Porter who ran the train for 32 years, until his death in 1896. Following Mr. Porter came William H. Warren and M. S. Kent, both of whom are still living. The present conductor is E. E. Meacham, who recently completed 50 years of service with the New Haven. The present engineer is Robert Creighton.

The only other train in the world which can compare in length of service with the Boat Train is said to be the Flying Scotsman of the London & North Eastern in Great Britain, which made its first trip on August 8, 1850.

NEWS

Former Reserve Head Condemns Seaway Plan

Offers nothing to wheat grower or upper lake ports—Tolls should be levied

Edmund Platt, former vice-governor of the Federal Reserve Board, in a letter to the New York Times, condemns the proposed St. Lawrence Seaway, the treaty providing for the development of which is now awaiting ratification by the Senate. He also raises the question whether, if the project is to go through, President Hoover or Governor Roosevelt propose to make it a "self-liquidating project" by charging tolls—and if not, then why not?

"It is pretty difficult," says Mr. Platt, "to see why anybody in the State of New York, outside of the immediate territory where the construction money will be spent, should favor the creation of a 27-foot waterway in the St. Lawrence River. Here is a scheme the purpose of which is to divert traffic from the harbor of New York, from the Hudson river and the New York State Barge Canal, and from the great railroads which serve the State and the West, to foreign ports. Our astute governor has favored the project which he inherited from his predecessor as a political issue—on the theory that it is chiefly a power project. President Hoover naturally considers it a navigation project, but is more than willing that the taxpayers of New York should pay more than their share of the cost.

"Meanwhile Canada, having all the power it needs at present from much less expensive projects, does not appear to be overenthusiastic—although a large part of the Canadian expense of the whole waterway project has already been incurred in the completion of the deepened Welland Canal.

"I wonder if any one has yet adequately answered Professor Harold G. Moulton's study of the St. Lawrence project, published several years ago under the auspices of the Brookings Institute. To my mind, Professor Moulton showed conclusively that the expenditure of the tremendous amount of money involved could not be justified on any economic grounds. He maintained that the waterway development would not pay even if considered as a by-product of power development. Mr. Hoover evidently considers power as a by-product of waterway development, to be squeezed, however, for as much of the cost as possible.

"The Middle West has been persuaded that the development of this waterway spells farm relief—permanently higher prices for wheat and corn by the amount of the saving in transportation to Liverpool or other foreign markets. Has any great improvement in transportation ever resulted in higher prices for present producers? Haven't most of the benefits always gone to the purchasers, not to the producers? A notable improvement in transportation opens up new land for production and increases the competition of present producers. It does not increase the prices present producers receive. In short, there is nothing in the St. Lawrence project for the wheat-growers of the West—that is, for the growers on present wheat land. Perhaps we still have land that could grow wheat if transportation charges were lower. Canada certainly has such land, and in the course of years might benefit considerably—provided the Hudson Bay route turns out to be a failure.

"Moulton, I think, showed rather conclusively that there is not much in the development of the St. Lawrence route that would greatly benefit the upper lake ports. Certainly our own State ports, Buffalo particularly, would stand to lose more than they could gain.

"Is President Hoover or Governor Roosevelt or any one else seriously proposing to make this a 'self-liquidating' proposition by charging tolls? Why not?"

Reparation Asked for Refusal of Drought Relief Rates

B. B. Jones, of Berryville, Va., engaged in the business of general farming and raising of thoroughbred horses, has filed with the Interstate Commerce Commission a complaint against the Norfolk & Western and connecting railroads asking reparation on the ground that he was refused permits for emergency reduced rates for drought relief purposes in the fall of 1930 on the ground that he was not a "needy farmer" but the operator of a racing farm.

S. P. of Mexico Ordered to Operate by Government

The Southern Pacific of Mexico, which has been idle since June 27, when workers walked out after the company decided to reduce wages 10 per cent, resumed operations on July 24 following an order issued by President Ortiz Rubio on July 20, directing the Ministry of Communications to take over the management of the system and begin running trains. The government's action follows the failure of the Federal Board of Arbitration and Conciliation and the workers to reach an agreement.

Truck Line Official Supports Rail Policy

Says regulation would bring order out of present chaotic transport situation

That the declaration of policy made last week by the Association of Railway Executives will, "if carried to a conclusion, bring order to transportation;" that "regulation of a sensible sort will be welcomed by all far-seeing truckers;" and that "long-distance truck lines should not be direct competitors of railways," were the outstanding points in a statement made on July 25 by E. A. Houser, Jr., of the K. & S. Trucking Company, in support of the railroads' recent plea for equality of regulation between themselves and other forms of transportation.

Mr. Houser, who has had experience not only as a truck line officer but also as a shipper both by rail and highway, is now the New York agent of the K. & S. line, which operates a fleet of trucks in over-the-road, interstate commerce between southwestern North Carolina and New York City, specializing in express handling of novelty textile fabrics. Like the railroads, the truck lines have recently been adversely affected, according to Mr. Houser, by the irresponsible, wildcat type of competition for which regulation is becoming increasingly necessary. His statement, which is self-explanatory, follows in full:

"From the point of view of a man engaged in trucking, I believe the statement issued by the railway executives will, if carried through to a conclusion, bring order to transportation.

"Well organized trucking companies operated between logical points have been making profits, while railways have been showing deficits, but no sensible trucker thinks that this condition will continue indefinitely. Regulation of a sensible sort will, I believe, be welcomed by all far-seeing truckers, because they are beginning to face the same ruinous competition from which the rail lines suffered years ago when tickets to the Pacific Coast were almost given away.

"Trucking lines, and I am speaking of long-distance lines, should not be direct competitors of railways so far as freight service is concerned. Their service is primarily an express service and they should be limited to the handling of commodities in which speed and personal handling are necessary. Their rates should approximate express rather than freight rates. At present they are handling all sorts of commodities at all

(Continued on page 165)

A.R.A. Tests Driving at Grade Crossings

Nation-wide survey shows that 14 to 26 per cent of automobiles are recklessly handled

The Committee on Prevention of Highway Crossing Accidents of the Safety Section, American Railway Association, has made public the results of a survey that has just been made by 65 railroads in 47 states as to the conduct of travelers upon the highway in approaching and passing over railroad-highway grade crossings.

During an eight-hour period, observations were made by experienced and directed officials at 282 crossings, at which all character of protection was represented, including those in which the protection consisted solely of the standard cross-buck sign.

While the survey was in progress, 4,130 trains and 316,371 motor vehicles passed over those crossings. The observers were instructed that reasonable care implied that the driver of the motor vehicle looked in both directions for trains, reduced his speed to comply with local regulations and obeyed warning signals which indicated the approach of trains. When these simple terms were not met it was regarded as failure to use reasonable care and construed as reckless driving.

Of the drivers thus under observation, it was determined that 74 per cent exercised reasonable care as before defined; 14 per cent were classed as reckless, and 12 per cent came so close to the border line as to leave it debatable whether they were using reasonable care or were reckless. Sixty-seven instances were noted in which motor car drivers had particularly narrow escapes from injury. It was observed that there were 140 instances where the drivers of school buses transporting children failed to bring their buses to a stop prior to passing over crossings.

Substantially similar results are shown in a more detailed report of such tests on the New York Central Lines, indicating that during a 10-hour period 1,952,500 automobiles presumably pass over in reckless fashion the 13,000 crossings on that one system.

This check indicated an average of 1,315 motor vehicle movements per crossing, or a total of 8,547,500 in each 10-hour period. During the survey, which covered 61 crossing in New York, New Jersey, Ohio, Illinois, Indiana, Michigan, Pennsylvania, West Virginia and Ontario, between the hours of 8 a.m. and 6 p.m., there was an average of 24 train movements per crossing, or a total of 1,474. The character of the highways checked was as follows: City streets, 26; state highways, 23; federal highways, 7, and county highways, 5.

These crossings, as a whole, were protected by every means that the railroad utilizes, including flashlights, watchmen, bells, gates, cross-buck signs, advance warning signs and various combinations of these devices. At more than half the crossing the motorist had an unrestricted view of the track for about 100 ft.

Of the 80,231 motor vehicles passing over these 61 crossings, 13 per cent, or 10,462 were recklessly driven. In the 10-hour period there were 42 instances of particularly narrow escapes from injury. In 41 other instances school buses or other motor vehicles failed to stop before crossing the track where required by law to do so.

Railroad crossing casualities have been reduced in the three years since 1928 by 29.5 per cent as to fatalities and 30 per cent as to injuries.

Railroad Men at White House

Daniel Willard, president of the Baltimore & Ohio, was a luncheon guest at the White House on July 25, after calling at the Interstate Commerce Commission, and R. H. Aishton, president of the American Railway Association, conferred with President Hoover later in the day.

"Relief Profiteers"

Every week we hear or read of new proposals to relieve the effect of the depression by govenrment expenditures in some form. Many of these proposals are advocated by persons of such intelligence and apparent understanding and responsibility as to give pause to those citizens who would otherwise raise their voices in protest.

As examples, we see under construction concrete highways that are not essential, but authorized ostensibly to give employment. With like justification, other non-essential public construction is in process of receiving official sanction. And yet it is a matter of almost common knowledge that, due to the use of modern road building machinery, such work provides a minimum of employment per dollar of expenditure.

We constantly hear that our present stress is the consequence of war. True enough! But the process by which the present stress was reached has been a process of increased taxation. Every penny of the billions we expended for war purposes must be repaid by the men, women and children of our population, whether employed or unemployed. It is inescapable. What we are now doing through lack of clear thinking is adding to the measure of our burden and to the cost of living by authorizing the expenditure of additional millions in the name of relief. The relief appropriations are of vital interest to the prospective contractors. In the war we had our war profiteers. Within a year we shall know the term "relief profiteers."

—From a Letter to the New York Times by Maj.-Gen. John F. O'Ryan.

W.Va. Bars Common Carrier Truck Lines

Excessive highway damage, higher cost to public, among reasons for action

Acting under authority given by the motor vehicle law, the State Road Commission of West Virginia has decided not to permit trucks to haul freight for hire on public highways, over regular routes or between fixed termini, where the same service is being adequately performed by other common carriers. As reported in the *Railway Age* of July 16, however, passenger buses will be permitted to carry packages for hire, including newspapers, mail, and parcels, with a package limit of 50 pounds and load limits of 500 and 1,000 pounds, respectively, for small and large buses. The ruling of the commission will affect pending applications for "Class I" truck licenses, and all common carrier passenger buses operating in West Virginia.

Excessive damage to the public highways, without sufficient compensation, interference with other vehicles, and eventual necessity of higher railroad freight rates caused by smaller volume of business, are given as reasons contributing to a strict interpretation of the statute as to common carrier trucks. Public convenience is cited as the governing factor in the decision to let buses carry packages.

Authority for the commission's action is contained in article 6, section 4, of the state motor vehicle laws, as follows:

> The State Road Commission shall have the power to issue to any applicant a certificate of convenience, or to refuse to issue the same, or to issue it for the partial exercise only of the privilege sought, and may attach to the exercise of the rights given by such certificate such terms and conditions as in its judgment the public convenience and necessity may require. No such certificate of convenience shall be issued by the commission until it shall be established to the satisfaction of the commission, after a proper investigation, that the privilege so sought by the applicant is necessary or convenient for the public, and that the service so proposed to be rendered by the applicant is not being adequately performed at the time of such application by any other person, partnership, or corporation.

In announcing the decisions, Harold P. Tompkins, member of the commission in charge of motor vehicle activities, said in part:

"Common carrier transportation on the highways requires the State Road Commission to consider the public, the present carrier, and the applicant. The interests of the public as a whole must be placed first, but we have also endeavored to deal justly with the existing carriers and the applicants for carrier privileges.

"At the present time we have only one Class I truck line, though there are some 75 applications now pending for franchises to carry freight on the highways. Other permits to operate over non-competitive routes will be granted. Where railroad or other freight service is well established and adequate, we find no sufficient reason to grant Class I truck applications.

"To place truck lines on the highways in competition with adequate railroad service would mean damage to the public highways far in excess of the value of

the public service rendered. It would also mean that by reason of smaller volume of business the railroads would soon be compelled to protect their investment in tracks and equipment by higher freight rates. The public would thus be forced to pay for excessive damage to the highways caused by the heavy trucks and at the same time pay the higher rates to the railroads, caused by the operations of the same trucks."

Discussing further the damage caused by heavy trucks to the roads, for which the people must pay, Mr. Tompkins said:

"It has been determined by the United States Bureau of Standards that roads designed to carry three-ton loads without undue deterioration would be satisfactory for about 95 per cent of the vehicles in use today. To accommodate four of the remaining five per cent, it is found that roads of double this strength would be required, while to be correspondingly safe for the heaviest group, weighing up to fifteen tons and contributing about one per cent of the total, roads from three to five times as strong would be necessary.

"The five per cent of more than three tons total of vehicle and load cannot possibly pay, through annual license fees and gasoline tax, the excess cost required to build roads strong enough for them. To impose the enormous fees necessary to raise such sums, would automatically bar all such trucks from the highways. The other 95 per cent of vehicles using the roads must therefore pay the greater part of the excessive cost necessary to construct roads substantial enough for the five per cent, or must pay the excessive damage done by the five per cent to roads that would be substantial enough for the 95 per cent.

"This additional cost to the public imposed by the heavy trucks can be justified only if it be compensated for by special public benefits conferred through the operation of such trucks over the highways. Undoubtedly, there has been some demand for large trucks, and, while they operate, in my opinion they should pay more nearly in proportion to the additional cost of construction and upkeep of the roads used by them. Such vehicles carry the load of several small trucks at a lower cost per mile, and deliver some freight more conveniently than railroads.

"These benefits, however, are of a rather limited nature, applying to a comparatively small number of persons. The total public benefits conferred are not believed sufficient to compensate for the damage to the public-owned highways.

"The same facts apply to the heavy trucks from other states, operating in interstate commerce, but the State Road Commission has no power to bar such trucks from the roads, as long as they are within our present legal limits as to weight and dimensions.

"Class K trucks, which do not operate over regular routes nor between fixed termini, are the most numerous of the vehicles transporting property for hire over highways. While the State Road Commission must pass on their applications, there appears to be no practicable method by which the heavier ones may be barred, as long as the legal limits remain as they now are.

"Obviously, the solution, both as to the heavy interstate commerce trucks, the larger Class K trucks, and large privately-owned trucks, lies with the legislature. A moderate reduction of load limits, particularly as to trucks equipped with only two axles, appears highly desirable.

"The obstruction to other vehicles by large and slow moving trucks, while less serious from the financial standpoint, is nevertheless an annoyance and an inconvenience, and in many instances becomes a danger to life and property."

Politics Takes Charge

Power may some day be got from the St. Lawrence. Ocean-going ships may actually drop anchor at Duluth. But not until the politicians have had their harvests of votes!

And in the end the taxpayer will foot the bill. He will pay for a canal and a power plant at the usual extravagant rate of government construction. He will pay interest for interminable delays and sloth. In the end he will own a project that—like the New York State Barge Canal and countless other government undertakings—may very well have cost so much as to cease to be a sound economic enterprise. Even electric waffle irons may not be worth their keep.

But politicians will have had the votes.

—From an Editorial in the New York Herald-Tribune.

Alabama Dairy Products Rates Reduced

Transit charges on dairy products moving via the Southern to all Alabama stations were sharply reduced by the Alabama Public Service Commission on July 22, the rates being cut from five to three cents per hundred pounds and the minimum charge per car lowered from $10 to $6.30. Other minor changes in Alabama intrastate rates were ordered at the same time.

N. Y., O. & W. Shops Damaged By Fire

On July 25, for the second time in seven months, car shops of the New York, Ontario & Western at Middletown, N. Y., were the scene of a fire, which destroyed a car house with a loss of $60,000. For a time the shop offices were in danger, but firemen confined the blaze to the building in which it started.

Extension of Boston Switching Limits Suggested

Extension by the New York, New Haven & Hartford of its Boston switching limits to cover the New England Terminal Company's proposed $2,000,000 development along the south side of Neponset river has been suggested to the Massachusetts Department of Public Utilities by city officials of Quincy, Mass.

Santa Fe Proposes to Use S. P. Ferry Boats

The Atchison, Topeka & Santa Fe has applied to the Interstate Commerce Commission for authority to abandon its passenger ferry boat operations on San Francisco Bay and operations incidental thereto and to operate as a substitute an extended line to and from San Francisco over the tracks and via the ferry boats of the Southern Pacific.

Roads Co-Operate With Dallas Merchants

As a means of stimulating travel by rail to Dallas, Tex., for the fall market season of the Dallas Wholesale Merchants' Association, railroads serving that point from its trade territory have offered special week-end rates based on the one-way fare plus 25 cents for the round trip. The market season will begin on August 1 and extend through August 27, with style shows to be held on each Tuesday during this period. Tickets purchased on Friday's, Saturdays and Sundays during this period will be limited to leave Dallas before midnight of the following Wednesday, thereby allowing the purchaser to view the style show.

I.C.C. Re-Opens Glass Container Case

The Interstate Commerce Commission has re-opened for further hearing the case in which it recently declined to permit the railroads to reduce the classification rating on food products, l.c.l. packed in glass containers to the same rating provided for the same products packed in metal containers. The railroads had asked the change in order to be able to compete with trucks, because the trucks make no distinction in rate, and applied for a re-opening on the ground that the commission's decision represented an invasion of managerial discretion. Various shippers had also joined in the request for a re-opening. The further hearing will be held in October.

Railroad Committee, U. S. Chamber of Commerce, Meets at Buffalo

In anticipation of the consideration of the transportation problem at the next session of Congress, the Committee on Railroads of the Chamber of Commerce of the United States, of which Judge F. C. Dillard, of Sherman, Tex., is chairman met at Buffalo, N. Y., on July 27.

Proposed changes in the Interstate Commerce act—the rule of rate-making (section 15a) and valuations (section 19a)—were further considered, as well as various other measures with a view to unifying and simplifying railroad regulation. The problem of financial stabilization of railroads over periods of years to permit them to maintain themselves in bad as well as good times is being given special consideration, together with the adequacy of emergency measures being taken through the Railroad Credit Corporation and the Reconstruc-

tion Finance Corporation to meet difficulties resulting from the general business depression.

Emergency Fund to Create Jobs on Highways

Secretary of Agriculture Hyde on July 23 apportioned the $120,000,000 provided by the emergency relief and construction act for expenditure in emergency construction on the federal-aid highway system. The act provides that the amount apportioned to any state may be used to match the regular annual federal-aid apportionments and that when so used this amount shall be available for expenditure in paying the share of such state in the cost of federal-aid projects. The funds are available only for work on the federal-aid highway system performed before July 1, 1933. Funds advanced under the emergency act are to be reimbursed to the federal government over a period of 10 years commencing with the fiscal year 1938, by making annual deductions from regular federal-aid apportionments.

Railroad Owners' Association Urges Consideration for Stockholders

J. D. Shatford, chairman of the Railroad Owners' Association, has addressed circular letters to the members urging them to write to Senators and Congressmen urging the passage of regulatory measures for buses, trucks, airplanes and waterways. He also advises writing to the presidents of the railways suggesting various proposals to prevent receiverships, saying that the rate of 6 per cent paid to the Reconstruction Finance Corporation for loans is entirely too high, that "a move should be made to induce bondholders to accept income scrip until the depression burns itself out," and recommending that companies buy their own bonds at present low prices with money obtained from the Finance Corporation with the bonds as collateral. He also urges a further reduction in wages of railway employees of 15 per cent.

Employee Associations Grow

On July 21 an enthusiastic meeting of railway and express company employees was held at Rock Hill, S. C., and a local association of these employees was formed. J. J. Hill, local freight agent of the Southern, was elected president of the organization. Other points in the state at which employees have organized to protect their jobs against the inroads of subsidized and inadequately regulated competitors include Chester, Abbeville, Union, Greenwood and Newberry.

Tennessee employees have formed a state association, known as the Tennessee Railroad Employees and Citizens League, with headquarters at 928 Broad street, Nashville. John L. Curran is president of the organization and M. W. Mashburn, is secretary-treasurer.

In Canada a total of 21 "ship-by-rail" clubs are functioning and are broadening their activities constantly.

In Kansas, employees of the Rock Island have organized at several points, one of the most recent being Herington. The movement has had the acclaim of the local press and local merchants. One of the local newspapers donated display advertising space, quoting figures to show that the railroad paid more in taxes to the town than its gross revenues at that point.

Compromise on New York Central Suburban Fares Likely

The compromise increase of 25 per cent in the New York Central's commutation fares to and from New York City, which went into effect on April 1, may be approved by the various communities served by the railroad's Harlem, Putnam and Westchester lines, following recent conferences between counsel for the railroad and city and town officials.

For the past eighteen months the railroad has been seeking a 40 per cent increase in its suburban fares, but when opposition to a rise of that amount developed at hearings before the Public Service Commission of New York State and the Transit Commission of New York City, the smaller increase was put into effect for a period of five months, ending on September 1. In the event of a permanent compromise the road would maintain its fares at their present level.

Virginia Limits Truck Drivers to Eight-Hour Day

The State Corporation Commission of Virginia has promulgated and put into effect an extensive code of regulations for the governance of commercial motor transport. Hearings were held on July 25 on the new rules and bus and truck interests were present and protested, but without avail. The Railroad Employees' and Taxpayers Association of Virginia was represented at the hearing by H. H. Parker, president, S. P. Chockley and M. W. Tobey—all favoring the new rules. The eight-hour clause reads as follows:

"Rule 46. No motor vehicle carrier controlling, operating or managing any motor vehicle used in the transportation of persons or property shall cause or allow any driver or operator of such motor vehicle to work as a driver or operator for more than a maximum of eight driving hours in any twenty-four-hour period, and such driver or operator shall have at least eight consecutive hours' rest in every twenty-four-hour period."

Fire Sweeps Pennsylvania's Baltimore Piers

Fire of undetermined origin, sweeping beyond control of the 54 fire companies summoned by nine separate alarms, razed three Pennsylvania Railroad piers and damaged a fourth, all located on Clinton street, Baltimore, Md., on Sunday, July 17. The total damage, fully covered by the company's own insurance fund, was estimated at from $600,000 to $850,000, including the piers themselves, damage to freight on or near the piers and destruction of rolling stock. One civilian and seven firemen were injured, none seriously, and 25 others were affected by smoke while fighting the fire.

Since the other Pennsylvania facilities on the Baltimore waterfront, not touched by fire, are considered sufficient to handle present traffic, it is unlikely that the burned piers will be rebuilt immediately.

Spokane, Portland & Seattle Prepares for Legion Convention

With the object of stimulating interest in the 1932 national convention of the American Legion, which is to be held during September in Portland, Ore., the Spokane, Portland & Seattle is distributing to ticket agents and to all post commanders of the legion special illustrated circular letters describing the scenic attractions of the railroad's route between Spokane and Portland. The railroad company is also offering a special $2.50 round-trip rate, good on special trains on September 14 or on regular trains on any day during the convention, between Portland and Astoria, Ore., Seaside and nearby beaches (118 miles each way).

Boston & Maine to Operate "Eclipse Specials"

"Eclipse specials" will be operated by the Boston & Maine on Wednesday, August 31, from cities in the southern part of its territory to the best points of observation for the total eclipse of the sun which will be visible throughout a large part of New England on that day.

While the eclipse will move along a path approximately 100 miles wide, extending from Canada down through New Hampshire, Vermont, Maine and part of Massachusetts, including the tip of Cape Cod, astronomers and other scientists who are planning to make a special study of the event have decided that the best chances of seeing the unusual spectacle in its entirety are at Conway, N. H., and Mattocks and Fryeburg, Me., where three temporary observatories will be built and special equipment installed. At those points, which are practically on the center line of the eclipse, totality will last about one minute, 38 seconds, as compared with one minute 25 miles either side of the center line and only 35 seconds at places 40 miles from the center. At the same centers of scientific observation, to which the Boston & Maine will operate its special trains, the chances for fair weather at 3.30 p. m. on August 31, are, according to government observers, about 55 per cent. This probability, based on records of several years' standing, is better than at other points within the lines of totality.

One of the specials—operating to an event which will not occur again in New England for 85 years—will run from Boston, Mass., to Conway, N. H., and North Conway, via Reading, Mass., and the western route of the railroad's Portland division. Another will be operated jointly with the Maine Central from Boston to Fryeburg via Lynn, Mass., Salem, Beverly and Portland, Me. In addition, the B. & M. announcement states, other special services will be operated on August 30 and 31 between Boston and Lisbon, N. H., Littleton, Bethlehem, White-

Continued on next left-hand page

REMOVE THIS BURDEN

on railroad operation

"The railroads are today overburdened with thousands of locomotives which have outlived their usefulness. Their continued possession constitutes a menace to the vitality of railway transportation."

—RAILWAY AGE EDITORIAL

Your best locomotives now handle your reduced traffic. As business builds up again more locomotives will be needed. Don't drag your old locomotives off the scrap pile and expect to maintain your present cost per ton mile. New Super-Power Locomotives are needed to keep transportation expense at a minimum.

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field, Fabyan and Bretton Woods, and from Lawrence, Mass., Haverhill and Newburyport direct to the eclipse centers.

Truck Line Official Supports Rail Policy

(Continued from page 161)

sorts of rates, in many cases lower than freight. Some trucking lines are giving two-day service at less than freight rates between points that require up to a week by freight. My theory is that the logical field for trucks is the less-than-car-lot movement of materials that require speedy handling and that trucks can, even with federal supervision, handle these materials more economically than railroads.

"I believe that proper accounting methods would surprise many railroad managements as to their net incomes from l.c.l. shipments over a route that requires fast handling and numerous transfers. I don't believe the rail lines make much, if any, money out of such shipments. A suggestion from a trucking man as to railway accounting methods is amusing, I realize, because most trucking lines use the bank balance, if any, system of accounting.

"The car-lot field and slow-moving l.c.l. shipments belong to the railroads from the point of view of common sense. While there are trucking companies that try to handle car-lot stuff, I know of none that provide a genuine service, although the truckers may be making some money. For the primary usefulness of the truck is its ability to take a comparatively small shipment from a given point to another one without transfer or delay. Railways can handle car lots in this manner, but they cannot handle the smaller shipments without transfers.

"The railroads are largely responsible for the inroads trucks have made into their business, and in saying this I am not allowing any prejudice I might have as a trucker to run away with me. For about five years I was engaged in the textile business in the South. Our entire shipments were into the New York territory, and seven to ten days was the best we might expect on l.c.l. shipments and five days was the best on a car-lot. An extremely irritating factor was our inability to find out anything about a delayed shipment. I have waited ten days to find out where a misplaced shipment was. This has been corrected to a large extent since trucks entered the picture.

"Naturally, with such a condition con-

(Continued on page 166)

Net Income, Class I Railways—May and Five Months

	May and Five Months 1932	1931
Akron, Canton & Youngstown		
May	— $11,250	$7,275
5 mos.	— 14,501	25,078
Alton		
May	— 180,774	— 208,198
5 mos.	— 689,078	—1,692,417
Alton & Southern,		
May	9,265	29,380
5 mos.	74,833	97,800
Atchison, Topeka & Santa Fe System,		
May	— 886,290	— 118,863
5 mos.	— 1,643,740	2,074,711
Gulf, Colorado & Santa Fe		
May	Included in Atchison, Topeka & Santa Fe	
5 mos.		
Panhandle & Santa Fe		
May	Included in Atchison, Topeka & Santa Fe	
5 mos.		
Atlanta & West Point		
May	— 35,918	— 25,952
5 mos.	— 113,393	— 18,684
Western of Alabama		
May	— 31,655	— 1,720
5 mos.	— 94,104	52,159
Atlanta, Birmingham & Coast		
May	— 64,023	— 92,250
5 mos.	— 338,516	— 396,257
Atlantic Coast Line		
May	— 745,533	344,885
5 mos.	— 1,033,768	3,820,402
Charleston & Western Carolina		
May	— 14,190	10,773
5 mos.	— 26,065	58,622
Baltimore & Ohio		
May	— 1,078,159	586,538
5 mos	— 4,717,415	—1,289,061
Baltimore & Ohio Chic. Term.		
May	.....	.....
5 mos.	.....	.....
Staten Island Rapid Transit		
May	.....	.....
5 mos.	.....	.....
Bangor & Aroostook		
May	236,846	68,467
5 mos.	1,093,056	929,910
Belt Ry. Co. of Chicago		
May	— 33,956	— 2,077
5 mos.	— 276,366	— 41,262
Bessemer & Lake Erie		
May	— 163,886	153,569
5 mos.	— 870,169	— 655,873
Boston & Maine		
May	134,280	366,760
5 mos.	242,727	1,443,592
Brooklyn Eastern Dist. Term.		
May	— 10,856	7,517
5 mos.	— 44,125	23,829
Burlington-Rock Island		
May	— 89,028	— 108,871
5 mos.	— 390,934	— 530,166
Cambria & Indiana		
May	43,704	61,928
5 mos.	340,951	393,773
Canadian Pac. Lines in Maine		
May	.....	.....
5 mos.	.....	.....
Canadian Pac. Lines in Vermont		
May	.....	.....
5 mos.	.....	.....
Central of Georgia		
May	— 333,656	— 237,605
5 mos.	— 1,227,570	— 88,290
Central New Jersey		
May	— 365,019	15,792
5 mos.	— 294,424	321,869
Central Vermont		
May	— 96,704	— 87,310
5 mos.	— 459,653	— 119,065
Chesapeake & Ohio		
May	1,604,100	2,551,001
5 mos.	7,779,076	9,078,363

	May and Five Months 1932	1931
Chicago & Eastern Illinois		
May	— $379,758	— $340,437
5 mos.	— 1,585,989	—1,582,712
Chicago & Illinois Midland		
May	— 91,559	— 39,415
5 mos	— 75,948	— 137,493
Chicago & North Western		
May	— 1,671,767	— 726,100
5 mos.	— 5,970,389	—2,920,700
Chicago, Burlington & Quincy		
May	— 497,531	743,127
5 mos.	601,724	5,966,527
Chicago Great Western		
May	— 97,489	33,023
5 mos.	— 280,159	366,728
Chicago, Indianapolis & Louisville		
May	— 216,865	— 72,948
5 mos.	— 863,760	— 452,545
Chicago, Mil., St. Paul & Pac.		
May	— 3,147,270	—2,027,389
5 mos.	—10,885,217	—7,523,990
Chicago River & Indiana		
May	15,527	50,155
5 mos.	128,146	308,183
Chicago, Rock Island & Pacific		
May	— 947,354	— 35,639
5 mos.	— 4,354,335	— 620,753
Chicago, Rock Island & Gulf		
May	— 96,210	— 36,698
5 mos.	— 201,629	80,844
Chic., St. Paul, Minn. & Omaha		
May	— 370,334	— 266,608
5 mos.	— 1,648,048	—1,308,009
Clinchfield		
May	— 169,019	— 102,698
5 mos.	— 683,029	— 300,759
Colorado & Southern		
May	— 230,355	— 161,877
5 mos.	— 762,977	— 499,864
Ft. Worth & Denver City		
May	— 46,231	— 19,495
5 mos.	3,518	64,490
Columbus & Greenville		
May	— 946	12,208
5 mos.	— 12,027	47,948
Conemaugh & Black Lick		
May	— 22,676	— 23,586
5 mos.	— 103,056	— 131,693
Delaware & Hudson		
May	— 317,396	— 6,697
5 mos.	— 1,646,099	— 637,286
Delaware, Lackawanna & Western		
May	— 547,197	117,830
5 mos.	— 731,953	710,267
Denver & Rio Grande Western		
May	— 458,781	— 172,193
5 mos.	— 2,036,063	— 659,047
Denver & Salt Lake		
May	— 33,380	17,839
5 mos.	49,420	— 11,262
Detroit & Mackinac		
May	3,390	30,344
5 mos.	— 58,622	19,818
Detroit & Toledo Shore Line		
May	— 10,227	31,818
5 mos.	158,655	238,797
Detroit Terminal		
May	— 6,746	7,535
5 mos.	— 5,781	56,327
Detroit, Toledo & Ironton		
May	10,232	7,525
5 mos.	— 66,636	254,700
Duluth, Missabe & Northern		
May	— 456,556	— 178,884
5 mos.	— 2,418,460	—3,237,546
Dul., Win., & Pac.		
May	— 50,402	— 79,223
5 mos.	— 187,214	— 293,502

	May and Five Months 1932	1931
Elgin, Joliet & Eastern		
May	— $256,103	— $119,155
5 mos.	— 978,324	— 220,355
Erie Railroad		
May	— 492,946	— 130,006
5 mos.	— 2,096,849	129,215
Chicago & Erie		
May	.....	.....
5 mos.	.....	.....
New Jersey & New York		
May	— 22,341	— 18,283
5 mos.	— 120,050	— 91,810
N. Y., Susquehanna & Western		
May	6,408	22,666
5 mos.	— 135,474	80,886
Florida East Coast		
May	— 305,219	26,485
5 mos	— 499,967	76,166
Fort Smith & Western		
May	— 22,157	— 27,614
5 mos.	— 91,076	— 87,298
Galveston Wharf		
May	— 1,561	— 7,806
5 mos.	115,557	4,966
Georgia R. R.		
May	— 37,550	— 14,488
5 mos.	— 230,595	— 49,778
Georgia & Florida		
May	— 76,779	— 62,982
5 mos.	— 354,674	— 280,131
Grand Trunk Western		
May	— 464,318	— 158,116
5 mos.	— 2,025,483	—1,127,216
Canadian Nat'l Lines in New Eng.		
May	— 142,916	— 146,474
5 mos.	— 648,684	— 699,902
Great Northern		
May	— 2,213,836	2,809,866
5 mos.	— 9,602,463	—2,098,276
Green Bay & Western		
May	4,551	16,877
5 mos.	3,321 —	47,097
Gulf & Ship Island		
May	— 35,733	— 62,046
5 mos.	— 134,615	— 295,749
Gulf, Mobile & Northern		
May	— 68,525	— 28,242
5 mos.	— 251,949	— 136,804
Illinois Central		
May	— 522,171	— 323,564
5 mos.	— 1,127,832	—2,417,765
Yazoo & Mississippi Valley		
May	— 280,176	— 179,285
5 mos.	— 1,177,781	1,733,140
Illinois Central System		
May	Does not file	
5 mos.	Does not file	
Illinois Terminal		
May	— 53,864	90,111
5 mos.	— 149,070	239,302
Kansas City Southern		
May	— 149,772	— 212
5 mos.	— 582,263	257,151
Texarkana & Ft. Smith		
May	.....	46,324
5 mos.	.....	120,128
Kansas, Oklahoma & Gulf		
May	9,904	43,753
5 mos.	103,308	187,982
Lake Superior & Ishpeming		
May	— 36,659	12,879
5 mos.	— 195,178	— 177,658
Lake Terminal		
May	— 1,452	3,192
5 mos.	— 27,197	— 34,628
Lehigh & Hudson River		
May	10,231	26,401
5 mos.	56,418	120,686
Lehigh & New England		
May	— 22,389	39,949
5 mos.	135,713	207,441
Lehigh Valley		
May	— 492,776	— 49,843
5 mos.	— 1,355,363	— 498,254
Louisiana & Arkansas		
May	— 29,936	39,562
5 mos.	— 58,990	79,840

Continued on next left-hand page

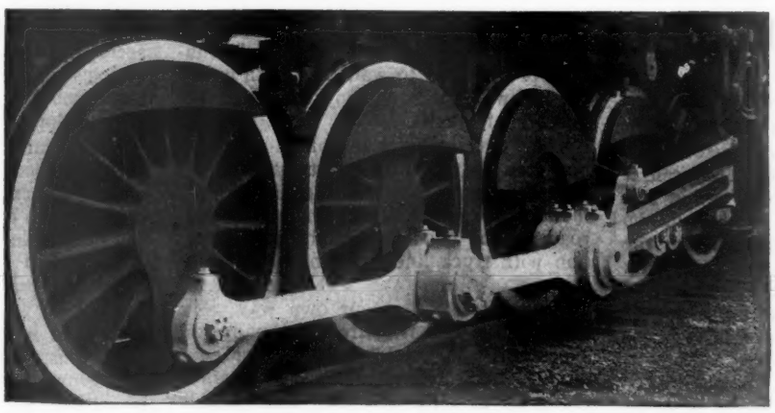
OVER-WORKED PINS cause a lot of MAINTENANCE

Clearance limitations have prevented the desired enlargement of pins as locomotive power has increased. Consequently bearing pressures have risen and maintenance has increased.

Now comes the Tandem Main Rod Drive to deal with the tremendous forces developed by the modern locomotive.

In this construction, instead of continuing to enlarge the main pin to meet increased piston thrusts, thereby increasing bearing pressures; the work has been distributed over four outside main crank pins and two axles.

In effect, there are two main rods, one behind the other, connected to two main pins. Work of the main pin has been reduced 25 to 50 per cent. depending on the number of drivers. Rod and axle bearings, therefore, run for much longer periods without maintenance.



THE TANDEM MAIN ROD DRIVE

THE FRANKLIN SLEEVE JOINT

Uses flat gaskets—the cheapest to buy, when replacement is necessary.

FRANKLIN RAILWAY SUPPLY CO., INC.

NEW YORK CHICAGO MONTREAL

Net Income, Class I Railways—May and Five Months (Continued)

	May and Five Months 1932	1931
Louisiana, Arkansas & Texas ..... May	— $18,883	— $17,385
5 mos.	— 69,062	— 72,883
Louisville & Nashville May	— 845,019	259,989
5 mos.	— 3,032,544	613,266
Maine Central..... May	23,966	13,017
5 mos.	— 248,514	34,711
Midland Valley.... May	— 23,558	— 17,610
5 mos.	— 17,037	— 27,303
Minneapolis & St. Louis May	— 420,513	— 234,565
5 mos.	— 1,587,232	— 990,383
Minn., St. Paul & S. S. Marie ..... May	— 550,819	— 401,191
5 mos.	— 3,036,653	—1,795,859
Duluth, South Shore & Atlantic.... May	— 46,763	— 134,139
5 mos.	— 514,747	— 400,278
Spokane International May	— 32,001	— 15,999
5 mos.	— 184,692	— 101,641
Mississippi Central. May	— 24,868	— 9,589
5 mos.	— 112,757	— 31,108
Missouri & North Arkansas ..... May	— 38,078	— 20,494
5 mos.	— 170,284	— 112,850
Missouri-Illinois .. May	— 15,538	— 9,699
5 mos.	— 59,923	— 31,325
Missouri - Kansas-Texas Lines ..... May	— 265,040	— 249,286
5 mos.	— 1,086,985	— 746,571
Missouri Pacific... May	— 1,227,312	130,237
5 mos.	— 4,916,780	821,016
Gulf Coast Lines. May	.....	.....
5 mos.	.....	.....
International-Great Northern ..... May	— 66,844	103,323
5 mos.	— 815,106	197,909
San Antonio, Uvalde & Gulf ..... May	— 20,092	— 42,059
5 mos.	— 77,183	— 67,682
Mobile & Ohio... May	— 203,118	— 162,958
5 mos.	— 980,930	— 584,802
Monongahela ..... May	29,029	20,753
5 mos.	97,077	132,675
Monongahela Connecting May	— 26,608	— 5,425
5 mos.	— 140,120	— 35,843
Montour ..... May	29,557	85,111
5 mos.	247,721	314,285
Nash., Chatt. & St. Louis ..... May	— 124,788	— 78,217
5 mos.	— 405,193	— 23,518
Nevada Northern.. May	2,386	9,587
5 mos.	— 7,248	41,982
Newburgh & South Shore ..... May	— 20,824	11,912
5 mos.	— 74,588	— 68,314
New Orleans Great Northern ..... May	— 41,492	11,807
5 mos.	— 158,919	— 43,504
New Orleans Terminal May	11,696	— 5,218
5 mos.	— 56,973	— 154,314
New York Central. May	— 3,963,796	2,163,414
5 mos.	— 7,983,124	3,575,083
Indiana Harbor Belt May	57,868	101,183
5 mos.	348,140	477,915
Pittsburgh & Lake Erie ..... May	46,263	226,006
5 mos.	474,909	1,346,224

	May and Five Months 1932	1931
New York, Chicago & St. Louis ..... May	— $580,291	— $156,068
5 mos.	— 1,996,967	1,001,350
New York, New Haven & Hartford. ... May	108,720	846,146
5 mos.	1,178,001	4,318,242
New York Connecting May	— 73,940	— 48,728
5 mos.	— 177,202	— 193,631
New York, Ontario & Western ..... May	52,551	85,599
5 mos.	363,462	68,358
Norfolk & Western. May	965,024	1,455,998
5 mos.	4,402,644	6,954,425
Norfolk Southern.. May	— 138,744	— 67,034
5 mos.	— 620,713	— 305,710
Northern Pacific.. May	— 1,062,670	— 272,895
5 mos.	— 3,778,293	—1,214,897
Northwestern Pacific May	— 137,793	— 146,123
5 mos.	— 817,641	—1,062,003
Oklahoma City-Ada-Atoka ..... May	— 1,472	1,439
5 mos.	— 39,917	— 39,618
Pennsylvania Railroad May	1,016,284	1,369,132
5 mos.	4,207,591	6,108,825
Long Island.... May	316,008	592,007
5 mos.	868,748	1,689,987
Peoria & Pekin Union May	22,060	1,617
5 mos.	48,993	53,422
Pere Marquette... May	— 397,480	— 158,335
5 mos.	— 1,207,244	— 647,526
Pittsburg & Shawmut May	— 22,351	4,049
5 mos.	— 104,446	— 23,973
Pittsburgh & West Virginia ..... May	— 90,554	73,913
5 mos.	— 295,441	304,268
Pittsburg, Shawmut & Northern ..... May	— 4,493	3,451
5 mos.	— 37,480	50,954
Reading ..... May	300,942	58,247
5 mos.	849,067	673,159
Atlantic City .. May	— 87,763	— 65,539
5 mos.	— 478,931	— 580,960
Richmond, Fredericksburg & Potomac. May	23,486	167,410
5 mos.	233,427	832,896
Rutland ..... May	— 7,590	— 11,805
5 mos.	— 15,749	— 86,423
St. Louis-San Francisco May	— 799,713	98,892
5 mos.	— 4,207,965	— 484,997
Ft. Worth & Rio Grande ..... May	— 32,564	— 14,871
5 mos.	— 184,787	— 168,342
St. Louis, San Francisco & Texas. May	— 45,152	— 63,754
5 mos.	— 313,694	— 281,067
St. Louis, Southwestern Lines ..... May	— 248,966	70,779
5 mos.	— 1,229,140	— 668,752
San Diego & Arizona May	— 88,836	— 65,248
5 mos.	— 349,827	— 420,343
Seaboard Air Line. May	— 820,599	— 523,525
5 mos.	— 3,240,208	—1,988,311
Southern Ry..... May	— 1,500,724	— 442,944
5 mos.	— 5,276,432	—2,320,777
Alabama Great Southern ..... May	— 73,271	9,789

	May and Five Months 1932	1931
5 mos.	— $289,053	$101,434
Cinn., New Orleans & Tex. Pac... May	38,994	91,626
5 mos.	14,924	127,464
Georgia Southern & Florida ..... May	— 13,106	— 3,874
5 mos.	— 92,375	— 19,341
New Orleans & Northeastern . May	— 82,612	— 52,957
5 mos.	— 323,293	— 323,985
Northern Alabama May	— 29,560	— 12,247
5 mos.	— 90,143	— 74,903
Southern Pacific Transportation System. May	296,549	1,681,193
5 mos.	— 6,331,876	—1,254,278
So. Pacific S. S. Lines May	Included in Southern Pacific	
5 mos.		
Texas & New Orleans May	Included in Southern Pacific	
5 mos.		
Spokane, Portland & Seattle ..... May	— 250,464	— 169,582
5 mos.	— 1,432,000	—1,109,986
Tennessee Central.. May	— 21,214	— 1,765
5 mos.	— 60,903	— 31,461
Terminal R. R. Assn. of St. L..... May	— 133,134	3,940
5 mos.	— 637,167	— 316,776
Texas & Pacific... May	— 142,795	240,080
5 mos.	— 607,468	842,382
Texas Mexican.... May	27,354	— 480
5 mos.	37,562	— 31,131
Toledo, Peoria & Western ..... May	— 660	81
5 mos.	— 3,543	35,599
Toledo Terminal... May	— 14,843	— 322
5 mos.	— 16,202	69,925
Union R. R. of Penna. May	— 184,956	— 56,705
5 mos.	— 749,394	— 503,592
Union Pacific..... May	678,336	1,104,337
5 mos.	5,278,486	7,783,133
Oregon Short Line May	— 249,755	— 126,553
5 mos.	— 478,717	1,197,266
Oregon-Wash. R. R. & Nav. Co... May	— 499,788	— 204,239
5 mos.	— 2,331,184	—2,156,422
Los Angeles & Salt Lake ..... May	— 114,551	— 135,016
5 mos.	— 567,064	— 990,324
St. Joseph & Grand Island ..... May	21,461	— 44,314
5 mos.	121,703	107,387
Utah ..... May	— 30,633	— 32,547
5 mos.	— 22,317	— 32,651
Virginian ..... May	13,824	231,593
5 mos.	805,553	1,073,869
Wabash ..... May	— 535,718	— 266,562
5 mos.	— 3,380,649	—1,436,591
Ann Arbor..... May	— 45,520	— 19,808
5 mos.	— 152,180	— 73,952
Western Maryland. May	5,882	9,128
5 mos.	151,073	426,601
Western Pacific... May	— 211,880	— 335,026
5 mos.	— 1,451,643	—1,523,604
Wheeling & Lake Erie May	— 147,987	97,153
5 mos.	— 205,349	312,726
Wich. Falls & So. May	— 18,942	— 12,031
5 mos.	— 57,275	— 83,679

Truck Line Official Supports Rail Policy

(Continued from page 165)

fronting us we jumped at the opportunity of using a service which took our cloth at our mill door and delivered it direct to our customers' door within two days. When a question of delay came up we were able not only to speak to the owner of the line about it, but to talk to the driver of the truck, the man who had actual contact with the entire movement. We were never at a loss to know where our goods were.

"Railroad men, or at least some of them, think store-door delivery is to be the answer to their problems, together with federal regulation of trucks, but this delivery will necessarily be comparatively slow. Trucks can be loaded with shipments destined to a small section of a given territory with resultant speed of delivery, but railways will have in their warehouses freight for different sections of a delivery territory for which consignees will have to wait their turn unless the railways use an unprofitably large number of trucks.

"An extremely stand-offish attitude has been that of rail men toward trucks with the result that truckmen have gone their own way. Attempts to talk to railroads about handling freight in connection with truck lines have been met with the attitude that 'We will take care of all this very soon in our own way.' My own opinion is that entirely too many rail executives had been working under conditions that amounted to a practical monopoly so long that they were unable to realize their monopoly had ended.

"The statement by the railroads shows that that era of railroad thinking is over. The best transportation system for the public, in my opinion, will be one in which the railways, the truck lines and the boat lines will co-ordinate their service. While this may at the present time seem visionary, we find that eventually systems which are of value to the greatest number of people have a habit of being adopted.

"There are a great number of details to be worked out, of course, before any actual agreements can be reached, but once a point of view is established details can be handled. And surprisingly enough the points of view of many trucking operators and railroad executives seem to be getting very close together.

"I have no personal knowledge of bus conditions, but it seems entirely logical that growing traffic problems, particularly in cities, will result in legislation to avoid congestion, if for no other reason, and that finally a system that might be likened to the New York subway will evolve, with buses as the local carriers and trains picking up and discharging bus and other passengers at express stops."

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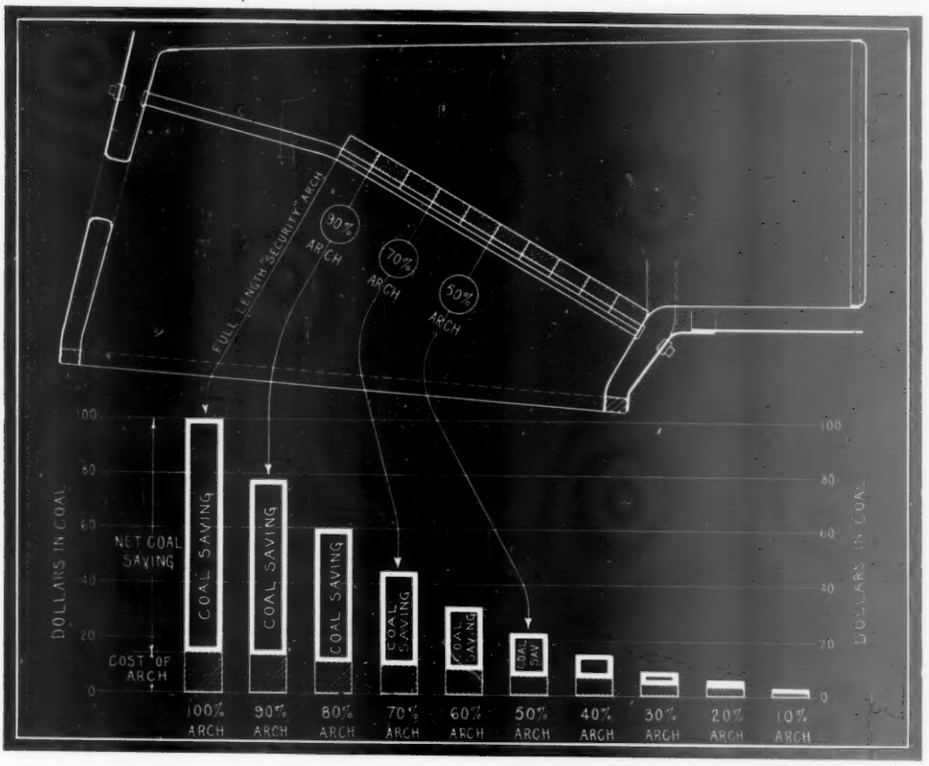
THERE'S MORE TO SECURITY ARCHES THAN JUST BRICK



THE EFFECT OF ABBREVIATED ARCHES ON FUEL SAVING

Cutting Down The Arch CUTS DOWN ON FUEL ECONOMY

THE aid given to fuel economy by the Locomotive Arch is taken as a matter of course.

But you can't have full economy without a complete Arch.

Stoker firing with all its desirable economies makes a long Arch a necessity. With stoker firing the last course of Arch brick takes on increased importance.

Any effort to shorten the Arch and save brick means a sharp rise in fuel consumption.

Any skimping on the Arch is bound to show in the fuel bill and the ratio is about $10 loss for every $1 of expense that is avoided.

HARBISON-WALKER REFRACTORIES CO.
Refractory Specialists

AMERICAN ARCH CO.
INCORPORATED
Locomotive Combustion Specialists

Equipment and Supplies

PASSENGER CARS

THE CHICAGO GREAT WESTERN has ordered four gas-electric rail motor cars; the 600-hp. power plants to be furnished by the Electro-Motive Company and the bodies and trucks by the Pullman Car & Manufacturing Corporation.

IRON & STEEL

THE NEW YORK CENTRAL has sold between 25,000 and 40,000 tons of No. 1 heavy melting scrap steel to the Carnegie Steel Company, for delivery during the next few months. This scrap was obtained from cars which have recently been dismantled.

SIGNALING

CHICAGO, BURLINGTON & QUINCY.—The Interstate Commerce Commission has denied this company's petition for a temporary relief order without a hearing setting aside its orders requiring train-stop or train-control installations on the lines between Red Oak, Iowa, and Lincoln, Neb., but has re-opened its train control proceedings for further hearing to permit the company to submit evidence in support of the petition.

Foreign

Swedish Electrification Progress

Electrification of the Stockholm-Malmö-Trelleborg main line and several junction lines uniting this and other lines with the previously electrified Stockholm-Gothenburg railway—a Swedish State Railway project described in the *Railway Age* of February 14, 1931—is proceeding favorably and will be terminated within the contract period, i. e., before the end of 1933, according to reports from Sweden published by Modern Transport (London), in an article which goes on to say:

"The cost estimates have held good on all essential points and no serious delays have occurred. Within the next few days electric operation will be possible on the section between Katrineholm (on the Stockholm-Gothenburg main line) and Norrkoeping (on the Stockholm-Malmö line), 30 miles, and between Hallsberg (on the Gothenburg line) and the town of Oerebro, 15 miles. Shortly afterwards the section between Norrkoeping and Stockholm (a distance of about 102 miles, of which 30 miles was converted on the electrification of the Stockholm-Gothenburg line some years ago) will be available for through operation, and by the end of the present year a further 49-mile section of the Stockholm-Malmö line, between Norrkoeping and Mjoelby, will be completed, as also two important connecting links between the Stockholm-Gothenburg and Stockholm-Malmö main lines. If this program is carried through there will remain approximately 250 miles of line for conversion from steam to electric traction in 1933."

Supply Trade

The General Railway Signal Company has sold the assets of the **Railroad Supply Company** to the **Western Railroad Supply Company,** 2360 South Ashland avenue, Chicago, Ill.

J. T. Stephenson, who represents a number of railway supply manufacturers, will remove his office on August 1 from the Munsey building to the Washington Loan & Trust building, Washington, D. C.

Norman W. Foy, assistant western manager of sales of the **Republic Steel Corporation,** with headquarters at Chicago, has been promoted to Chicago district sales manager, to succeed **H. S. Schroeder,** resigned.

George E. Benson, formerly treasurer of the National Tube Company, has been elected treasurer of the **Youngstown Sheet & Tube Company** and will take over the work formerly handled by **Walter E. Meub,** who recently was elected vice-president in charge of finances.

Robert Gregg, president of the Atlantic Steel Company, Atlanta, Ga., has resigned from that company and will become vice-president of the **Tennessee Coal, Iron & Railroad Company,** a subsidiary of United States Steel Corporation, at Birmingham, Ala., succeeding **Willard Wilson,** for many years vice-president in charge of sales of the Tennessee Coal, Iron & Railroad Company, who will retire.

The Ohio Brass Company, Mansfield, Ohio, has licensed **Hubbard & Co.,** Pittsburgh, Pa., to manufacture and sell pole line hardware developed by the Ohio Brass Company and protected by its patents. This is a manufacturing and sales arrangement only, and there is no financial interest of either company in the other. These materials in the future will be manufactured only by Hubbard & Co., although both companies will cooperate in the sale of the devices.

TRADE PUBLICATION

DARDELET SELF-LOCKING THREAD.—The Dardelet Threadlock Corporation, New York, has issued a new edition of its bulletin No. 5, which deals in a most thorough manner with the design, efficiency, general adaptability and commercial availability of the Dardelet self-locking screw thread intended for use wherever positive and non-yielding holding power is desired.

Construction

DELAWARE & HUDSON.—The Public Service Commission of New York has amended its previous order providing for the elimination of various grade crossings of this company's lines in the city of Albany, N. Y. Under the amended order the railroad tracks now occupying the center of Church street will be relocated at the side of that street; the Cherry, Bassett and Plum street crossings will be closed, traffic being diverted to other streets; and the Fourth avenue and Green street crossings will be retained at grade for the present, instead of being eliminated immediately, as directed in the original order. The commission has also approved revised estimates of cost for land to be acquired by the D. & H. in connection with the elimination of a grade crossing on the Delaware Turnpike county highway in Bethlehem, N. Y.

ERIE.—The Roberts & Schaefer Company, Chicago, has been awarded contracts for the construction of an N. & W. type, single-track cinder handling plant, and for sand drying, handling and storage equipment for this company at Elmira, N. Y.

NEW YORK CENTRAL.—Proceedings for the elimination of the Deans crossing of this company's line in Amawalk, N. Y., of its Demarest crossing, Philadelphia, N. Y., and of its James street crossing, Carthage, N. Y., have been closed by the New York Public Service Commission, which has approved revised cost estimates for acquisition of land required by the elimination of a New York Central grade crossing located just north of Valhalla station, Mount Pleasant, N. Y., and of the Penfield and Landing road crossings of the same railroad in Brighton, N. Y.

PUBLIC SERVICE COMMISSION OF NEW YORK.—The New York Public Service Commission has designated for elimination, at an estimated combined cost of approximately $130,000, two crossings of the Buffalo, Rochester & Pittsburgh (now operated by the Baltimore & Ohio), located respectively on the Salamanca-Ellicottville county highway 2.26 miles south of Great Valley, N. Y., and on the Rock City Hollow road 1.89 miles south of the same station. The commission has closed proceedings for the elimination of four other crossings of the same railroad in the town of Great Valley. Proceedings for the elimination of a grade crossing of the New York, New Haven & Hartford located on the Wicotee-Beekman county highway about one mile west of Stormville station, East Fishkill, N. Y., have been reopened by the commission, while those for the elimination of the Center avenue crossing of the Long Island in East Rockaway, N. Y., have been closed.

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WHERE conditions permit operating multiple shifts, the savings that can be effected by

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DIESEL LOCOMOTIVES

assure an investment that is unusually attractive.

Consider the savings in fuel . . . in maintenance . . . the elimination of costly boiler wash periods . . . that in many cases coal chutes and water cranes can be dispensed with . . . also the advantage of practically silent and clean operation.

American Locomotive Company
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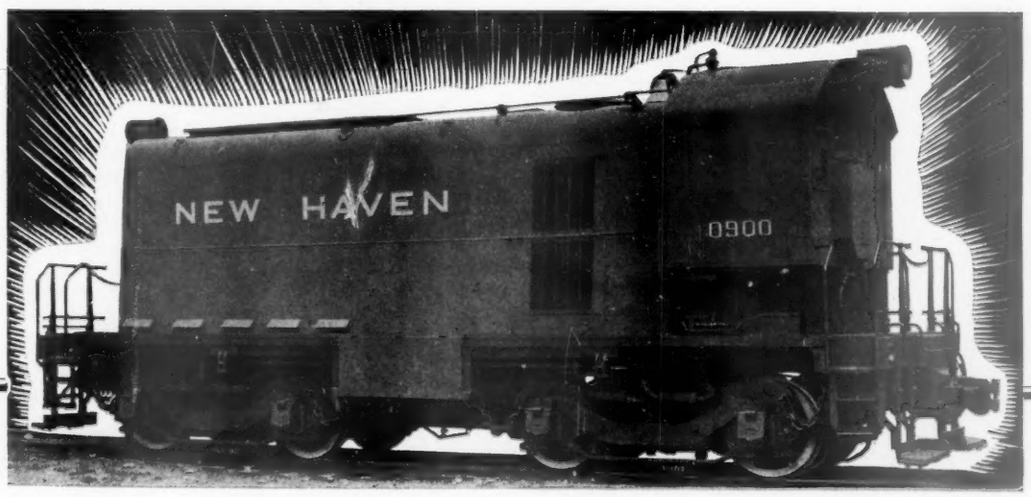

Financial

BOSTON & MAINE.—*Bonds.*—The Interstate Commerce Commission has authorized this company to issue $10,000,000 of first mortgage, 6 per cent bonds, series LL, to be pledged as collateral security for short term notes issued under section 20-a (9) of the Interstate Commerce Act.

CARLTON & COAST.—*R.F.C. Loan.*—This company, which some time ago applied for a loan of $981,000 from the Reconstruction Finance Corporation to finance the purchase of a 17-mile logging road of the Flora Logging Company in Oregon, construct an extension and rehabilitate the property, has amended its application to ask for only $556,000, saying it has arranged to purchase the road with $425,000 of promissory notes.

CHATTAHOOCHEE VALLEY. — *Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Standing Rock, Ala., to the east boundary line of Alabama, 14.32 miles.

DETROIT, TOLEDO & IRONTON.—*Bonds.*—The Interstate Commerce Commission has authorized this company to procure the authentication and delivery of $2,000,000 of 5 per cent first and refunding mortgage bonds, series A, in partial reimbursement for capital expenditures.

FONDA, JOHNSTOWN & GLOVERSVILLE.—*R.F.C. Loan.*—This company has filed a new application for a loan of $170,387 from the Reconstruction Finance Corporation for the payment of notes, interest and taxes, and the purchase of new equipment.

FORT SMITH, SUBIACO & ROCK ISLAND. —*R.F.C. Loan.*—This company has applied for a loan of $75,000 from the Reconstruction Finance Corporation to pay notes, taxes, etc.

GEORGIA & FLORIDA.—*Receivers' Certificates.*—The receivers have applied to the Interstate Commerce Commission for authority to issue $1,000,000 of 7 per cent receivers' certificates.

GREENE COUNTY.—*R.F.C. Loan.*—The Interstate Commerce Commission has approved a loan ot $17,165 to this company from the Reconstruction Finance Corporation to repay the balance of $6,000 due on its loan under section 210, to purchase a locomotive for $3,250, and to pay audited vouchers of $7,915, but has deferred consideration of other items of a total of $40,000 applied for, including a bank loan and advances by its president, pending a further showing that the loans can be adequately secured.

GULF, MOBILE & NORTHERN.—*Assumption of Liability.*—The Interstate Commerce Commission has authorized this company to assume liability under section 20-a of the Interstate Commerce Act for a promissory note for $200,000 issued by the New Orleans-Great Northern to the Railroad Credit Corporation.

LEHIGH VALLEY.—*Bonds.*—The Interstate Commerce Commission has authorized this company to issue $2,000,000 of general consolidated mortgage, 5 per cent bonds, to be pledged as collateral security for short term notes.

LOS ANGELES & SALT LAKE.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon two branch lines in Utah, from Moody to Hinckley, 3.35 miles, and from Delta to Lucerne, 12.82 miles.

MERIDIAN & BIGBEE RIVER.—*R.F.C. Loan Approval Cancelled.*—The Interstate Commerce Commission has cancelled its approval dated May 12 of a loan to this company of $600,000 from the Reconstruction Finance Corporation for the purpose of constructing an extension from Cromwell, Ala., to Myrtlewood, 21 miles, on the condition, among others, that the loan be secured by the unrestricted guaranty, joint and several, of the Illinois Central and the Louisville & Nashville, or of the Western of Alabama, on the theory that they would receive traffic originated on the extension. By amended application the applicant stated that it had been unable to comply with this condition and asked for a loan of $864,654 to cover the cost of the extension and to pay bank loans, a judgment, and taxes, offering as security its first mortgage bonds and stock. Without the support of the guaranty of connecting carriers, the commission said, it was of opinion that the security offered is not adequate, and it denied approval of the new application.

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.—*R.F.C. Loan.*—The Interstate Commerce Commission on July 25 approved an additional loan of $5,000,000 to this company from the Reconstruction Finance Corporation for two years, to be used in part payment at maturity of $10,000,000 of one-year secured notes due August 1. The company had originally applied for a loan of $15,329,608 and on February 25 the commission certified its approval of a loan of $2,300,000. On June 7 the company filed an amended application reducing the amount of the additional loan sought to $5,000,000, asserting that it expected to be able to obtain its other requirements from other sources. The company has secured from the holders of the one-year notes agreement to accept one-half in cash and one-half in new two-year 6 per cent notes secured by $6,250,000 of first-refunding mortgage 5½ per cent bonds of 1978, bearing the unconditional guaranty of the Canadian Pacific as to interest. The Railroad Credit Corporation has provided for the interest requirements of the Soo and the Wisconsin Central for May and June and expects to provide for similar requirements for July, August, and September. As security for the loan the company is to pledge $6,250,000 of its first refunding mortgage bonds.

The commission has authorized the company to issue the $5,000,000 of 6 per cent secured notes and to pledge as collateral therefor $6,250,000 of first refunding mortgage bonds.

MISSOURI PACIFIC. — *Abandonment.* — This company has applied to the Interstate Commerce Commission for authority to abandon a branch line extending 8.5 miles easterly from Barton Crossing, Ark.

NEW YORK, NEW HAVEN & HARTFORD. —*Bonds.*—The Interstate Commerce Commission has authorized this company to issue $25,516,000 of first and refunding mortgage 6 per cent bonds, series of 1932, in reimbursement of expenditures made in paying matured obligations, the bonds to be pledged as collateral security for short term notes.

OHIO & KENTUCKY.—*R.F.C. Loan.*—The receiver has applied for a loan of $65,066 from the Reconstruction Finance Corporation to pay wages and accounts payable.

PENNSYLVANIA-GRAND TRUNK. — *Car Ferry Service Across Lake Michigan.*—Examiner R. R. Molster, of the Interstate Commerce Commission, has recommended in a proposed report that the commission authorize the Pennsylvania to extend its service by car ferry across Lake Michigan from Muskegon, Mich., to Milwaukee, Wis., and that the commission approve the acquisition by the Pennsylvania and the Grand Trunk Western of control by purchase of stock, of the Grand Trunk-Pennsylvania Transportation Company. He also recommends authorization for operation by the Pennsylvania under trackage rights over tracks of the Grand Trunk Western and the Muskegon Railway & Navigation Company to connect with the ferry service, for operation by the Grand Trunk Western over tracks of the Pennsylvania and of the Muskegon Railway & Navigation Company, and for operation by the latter over the tracks of the Pennsylvania. He also recommends that the parts of the applications of the Pennsylvania and the Grand Trunk Western seeking authority to extend their service by car ferry from Muskegon to Manitowoc, Wis., be dismissed without prejudice. In view of opposition by the Ann Arbor and Pere Marquette and for other reasons the Pennsylvania withdrew its application for the extension to Manitowoc and the Grand Trunk Western agreed to temporary withdrawal of its application.

PERE MARQUETTE.—*Bonds.*—The Interstate Commerce Commission has authorized this company to procure the authentication and delivery of $3,000,000 of first mortgage, 4½ per cent, series C bonds. That part of its application requesting authority to issue a similar amount of promissory notes and to pledge as collateral for them $9,386,000 of first mortgage, 4½ per cent, series C bonds, has been dismissed.

SAVANNAH & ATLANTA.—*R.F.C. Loan.* —The Interstate Commerce Commission has approved a loan of $276,200 to the receiver from the Reconstruction Finance Corporation to pay taxes, accrued in-

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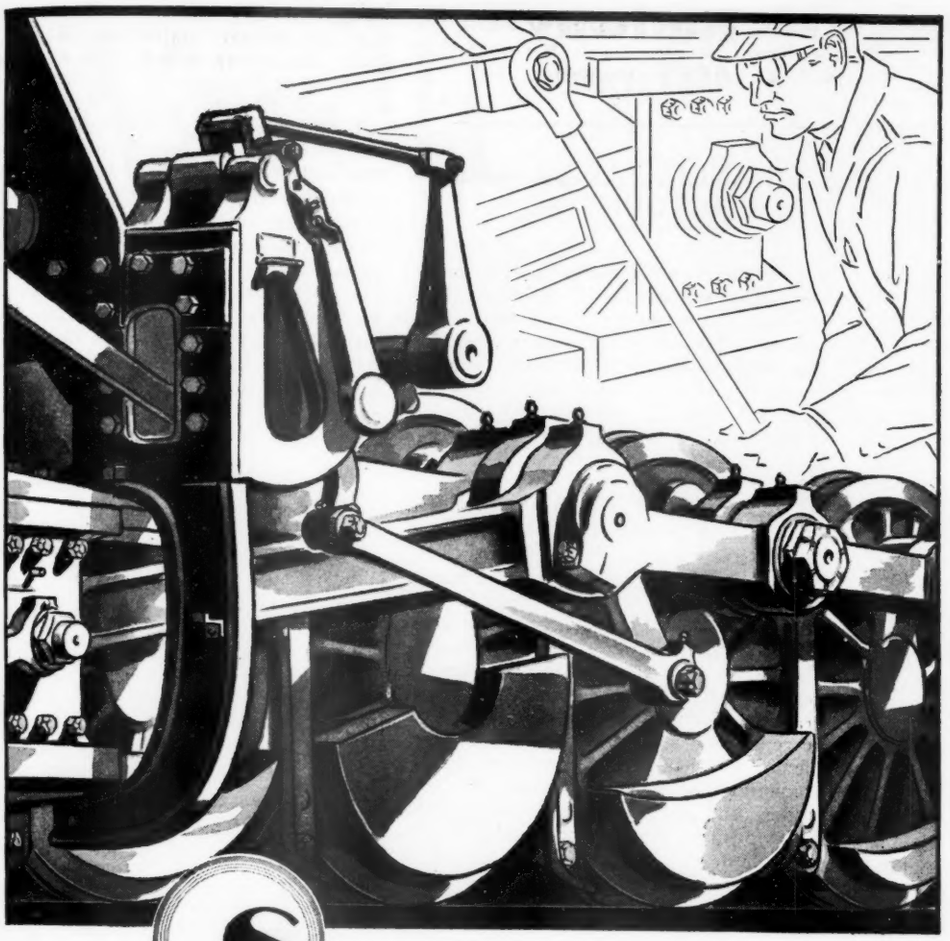

STRENGTHEN YOUR BOLTED CONNECTIONS WITH AGATHON ENGINE BOLT STEEL

Designers know that there are forces working from one side of the locomotive to the other that tend to rack the locomotive. « They increase in violence with the locomotive's power. « The old material that once served for engine bolts is unable to restrain these greater forces. Bolts stretch, parts loosen and maintenance increases. « But Republic metallurgists have kept abreast of the new conditions and in Agathon Engine Bolt Steel have developed a material with high elastic limit, free from seams or slag pockets and possessed of great fatigue resistance. « You can safely trust Agathon Engine Bolt Steel to keep parts tight under the most difficult operating conditions.

Toncan Iron Boiler Tubes, Pipe, Plates, Culverts, Rivets, Staybolts, Tender Plates and Firebox Sheets • Sheets and Strip for special railroad purposes • Agathon Alloy Steels for Locomotive Parts • Agathon Engine Bolt Steel • Nitralloy Agathon Iron for pins and bushings • Agathon Staybolt Iron • Climax Steel Staybolts • Upson Bolts and Nuts • Track Material, Maney Guard Rail Assemblies • Enduro Stainless Steel for dining car equipment, for refrigeration cars and for firebox sheets • Agathon Nickel Forging Steel (20-27 Carbon) . . . . . .

AGATHON STEELS

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terest, vouchers, etc., on an application for $828,761, which included $500,000 asked to pay receiver's certificates.

STOCKTON TERMINAL & EASTERN.—*R. F. C. Loan.*—The Interstate Commerce Commission has approved a loan of $40,750 to this company from the Reconstruction Finance Corporation to pay 50 per cent of advances made by its holding company, the Stockton Terminal & Eastern Railroad Company, and to apply in reduction of excess of current liabilities over current assets. The company had applied for a loan of $65,000.

TEXAS, OKLAHOMA & EASTERN.—*R. F. C. Loan.*—The Interstate Commerce Commission, upon further consideration, has approved a loan of $108,740 to this company to be applied toward the discharge of the indebtedness of the company to the Choctaw Lumber Company. The commission had previously denied approval of a loan of $217,477 for the same purpose but the company has now offered additional security.

WICHITA FALLS & SOUTHERN.—*R. F. C. Loan.*—The Interstate Commerce Commission, upon reconsideration, has authorized a loan of $400,000 to this company from the Reconstruction Finance Corporation for the purpose of paying one-half of the principal of a matured loan to the First National Bank, of Dallas, Tex., and one-half of a loan of $550,000 from Frank Kell, president, provided they agree to extend the remaining half of the loans for three years. The commission had previously denied approval of the loan but the report now says that conditions have changed and that the decision of the Supreme Court of the United States upholding the Texas laws limiting the size and capacity of highway trucks in a way that will tend to restrict truck competition should result in increased tonnage and earnings for the company.

Dividends Declared

Cincinnati Inter-Terminal.—First preferred, $2, semi-annually, payable August 1, to holders of record July 20.

Average Prices of Stocks and of Bonds

	July 26	Last week	Last year
Average price of 20 representative railway stocks..	14.76	12.87	67.19
Average price of 20 representative railway bonds..	54.54	51.04	91.38

Tentative Valuation Reports

The Interstate Commerce Commission has issued tentative valuation reports, by Division 1, covering properties of railroads that have come into existence since its first series of valuation reports was begun, finding the final value for rate-making purposes of the property owned and used for common-carrier purposes as of the respective valuation dates as follows:

Mobile & Gulf—December 31, 1928	$425,000
East Texas & Gulf—December 31, 1927	48,000
Mississippi Export—December 31, 1928	585,000
East Erie Commercial—December 31, 1927	550,000
Uvalde & Northern—December 31, 1927	550,000
Mississippi & Western—December 31, 1928	80,000
Savannah River Terminal—December 31, 1928	55,000

Railway Officers

FINANCIAL, LEGAL AND ACCOUNTING

As announced in the *Railway Age* of July 23, **F. Van Note,** assistant controller of the Southern Pacific Company, has been elected controller, with headquarters as before at New York, and **F. L. McCaffery,** auditor, has been elected general auditor, with headquarters at San Francisco, Cal. Mr. McCaffery succeeds **T. O. Edwards,** who is retiring at his own request under the pension rules of the company.

Mr. Van Note was born at Farmingdale, N. J., on October 11, 1878, and entered railway service in February, 1899, with the Lehigh Valley. In February, 1905, he became connected with the Southern Pacific, remaining in the employ of that company until February, 1907, when he undertook the position of general auditor with the American Telegraphone Company. In August, 1909, he re-entered service with the Southern Pacific, and has served consecutively as accountant; chief clerk to assistant controller, and assistant controller, which latter position he held until his recent promotion.

Mr. McCaffery's entire railway service of 30 years has been spent with the Southern Pacific. He was born on December 5, 1878, at Camp Baker, Mont., and entered railway service in August, 1902, as a clerk in the office of the auditor of disbursements of the Southern

F. L. McCaffery

Pacific at San Francisco. Four years later he was advanced to traveling accountant out of that office, and in June, 1909, he was appointed special accountant in the auditor's office. Three years later Mr. McCaffery was promoted to chief clerk of the outside companies' bureau, in which position he remained until February 1, 1914, when he was further advanced to auditor of disbursements. During federal control of the railroads he served as corporate auditor, being appointed assistant auditor at the close of federal control on March 1, 1920. Five years later he was advanced to auditor holding that position until his recent election as general auditor.

T. O. Edwards, general auditor, who will retire on August 1, was born at Greenville, Tex., on June 30, 1864. Mr. Edwards entered railway service in 1881, as a laborer in the roadway department of the Houston & Texas Central (now Texas & New Orleans). His first position as auditor, in 1904, was with the Southern Pacific Lines in Louisiana, with headquarters at New Orleans, La. In 1911, he became auditor freight accounts with the Southern Pacific at San

T. O. Edwards

Francisco, Cal. From 1912-13 he served as auditor of the Missouri-Kansas-Texas with headquarters at St. Louis, Mo. In 1913, he re-entered the service of the Southern Pacific as auditor at San Francisco, and in 1925, he was advanced to general auditor at that point. In 1929, he became general auditor at New York, the position he will relinquish upon his retirement. Mr. Edwards was president of the Railway Accounting Officers Association in 1929-1930.

OPERATING

The position of assistant general manager, Atlantic region, of the Canadian National, has been abolished, following the retirement, noted in the *Railway Age* of June 25, of **R. W. Simpson,** who formerly held that office.

TRAFFIC

Neal M. Leach has been appointed to the newly-created position of general agent for the Illinois Terminal, with headquarters at New Orleans, La.

V. D. Fort, freight traffic manager of the Illinois Central, with headquarters at Chicago, has been promoted to eastern traffic manager, a newly created position, with headquarters at New York, and has been succeeded by **William Haywood,** assistant freight traffic manager, with headquarters at Chicago.

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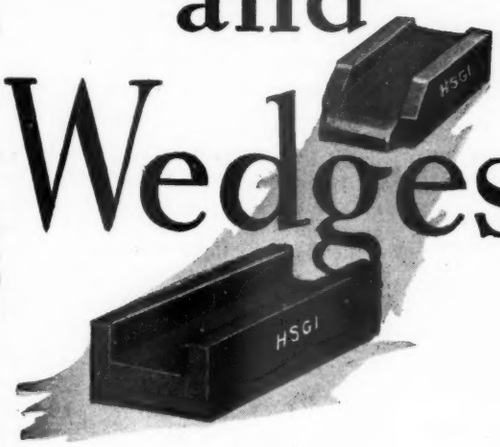
Watch Your Shoes and Wedges



DON'T risk the penalty of high maintenance costs on account of poor wearing shoes and wedges.

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Their application will help your maintenance forces to prevent those disastrous driving box pounds which shorten the life of frames, axles, bearings and all reciprocating parts.

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Valve Bull Rings
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Hub Liners
Shoes and Wedges
Floating Rod Bushings
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(Duplex Springs for Above Sectional Packing)
Cylinder Snap Rings
Valve Rings All Shapes

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Export Agent for Latin America:
International Rwy. Supply Co., 30 Church Street, New York, N. Y.

HUNT-SPILLER GUN IRON
Air Furnace

B. F. Fuller, assistant general passenger agent of the Atlantic Coast Line, with headquarters at New York, has been transferred to a similar position at Miami, Fla. **R. S. Voigt** has been appointed eastern passenger agent at New York, and **George O. Davis** has been appointed district passenger agent at Chicago, Ill.

L. A. Tibor, district freight agent for the Gulf, Mobile & Northern and the New Orleans Great Northern at Chicago, has been promoted to the newly-created position of general freight agent (solicitation), with headquarters at Mobile, Ala. Mr. Tibor assumes the duties of **Ernest L. Mountfort,** freight traffic manager, deceased, and the position of freight traffic manager has been abolished.

R. E. Barr, who has been appointed coal traffic manager of the Illinois Central, as announced in the *Railway Age* for July 23, brings to his new position a wide experience that has covered every phase of the coal industry. He first entered business in 1902, when he became connected with the American Express Company, Chicago, which company he left a short time later to enter the service of the Illinois Central, where he held various positions in the freight traffic department, becoming particularly concerned with matters pertaining to coal traffic. In 1917, Mr. Barr left this road to become sales manager of the coal department of the Edward & Bradford Lumber Company, Chicago, serving later as vice-president and subsequently as president of the Great West Coal & Lumber Company. When the Knox Consolidated Coal Company of Indiana was organized, Mr. Barr became its northwestern manager, with headquarters in Chicago, and on July 1, 1930, he was appointed manager of the Chicago office of the Consolidated Coal Company. He resigned from the latter position to become general coal agent of the Illinois Central on March 1, 1932, which position he was holding at the time of his recent appointment.

R. E. Barr

ENGINEERING AND SIGNALING

The positions of district engineer on the Chicago, Burlington & Quincy were abolished, effective July 15, and all work previously handled under the jurisdiction of the district engineers on the Eastern and Central districts was placed under the jurisdiction of **C. L. Persons,** assistant chief engineer at Chicago, while **F. T. Darrow,** assistant chief engineer at Lincoln, Neb., has had his jurisdiction extended to include the duties of the district engineer of the Western district. **R. W. Willis,** district engineer of the Eastern district, with headquarters at Chicago, has been appointed division engineer of the Galesburg and Beardstown divisions, with headquarters at Galesburg, Ill. He replaces **W. G. Boon,** who has been transferred to Burlington, Iowa, where the position of division engineer is newly created. **E. H. Peck,** district engineer of the Central district, with headquarters at Burlington, Iowa, has been appointed division engineer of the St. Joseph division, with headquarters at St. Joseph, Mo., succeeding **R. H. Johnston,** who has been appointed an instrumentman at the same point. **G. F. Hamilton,** district engineer of the Western district, with headquarters at Wymore, Neb., has been appointed division engineer of the Wymore division, with headquarters at the same point, succeeding **C. W. Charleson,** who has been assigned to other duties.

SPECIAL

Dr. L. H. Wade has been appointed chief surgeon of the Colorado & Southern, at Denver, Colo., succeeding **Dr. Frank H. McNaught,** who will retire effective August 1.

OBITUARY

P. F. McManus, who retired on December 31, 1931, as general manager of the Elgin, Joliet & Eastern, died on July 22, at his home at Joliet, Ill.

J. W. Walsh, president and general manager of the Rock Island Southern, with headquarters at Davenport, Iowa. died on July 24 in that city following a heart attack.

Louis A. Richardson, general superintendent motive power of the Chicago, Rock Island & Pacific, with headquarters at Chicago, died in that city on July 26, after a prolonged illness.

Abel S. Halsted, general solicitor of the Los Angeles & Salt Lake, with headquarters at Los Angeles, Cal., died at that point on July 21. Mr. Halsted has been connected with the legal department of the Los Angeles & Salt Lake and its predecessors for almost 40 years. He was born on August 20, 1870, at Mamaroneck, N. Y., and entered railway service in 1893 in the law department of the Los Angeles Terminal, which was later merged with the San Pedro, Los Angeles & Salt Lake (now the Los Angeles & Salt Lake). In 1904, he was appointed general attorney for the S. P., L. A. & S. L., and four years later he was further advanced to assistant to the general counsel. In 1911, Mr. Halsted was promoted to general counsel of this road, which position he retained with the L. A. & S. L. until July 14, 1921, when he was appointed general solicitor at the time this road became a unit of the Union Pacific System.

James D. Watson, assistant to the president of the St. Louis Southwestern, died suddenly at his home at St. Louis, Mo., on July 20. Mr. Watson's connection with the Cotton Belt dates back 37 years. He was born on June 30, 1870, at Port Huron, Mich., and entered railway service on August 1, 1880, with the St. Louis, Iron Mountain & Southern (now a part of the Missouri-Pacific), serving in various positions with the mechanical, stores, operating and traffic departments of this road until October, 1895, when he entered the service of the St. Louis Southwestern. With this road Mr. Watson served successively as contracting agent, traveling freight agent, division freight agent, chief clerk in the general freight office at St. Louis, and assistant general freight agent at the latter point, until November, 1913, when he became vice-chairman of the Southwestern Tariff Committee. He returned to the Cotton Belt in May, 1914, as assistant freight traffic manager, being appointed assistant to the president four years later. During the war Mr. Watson acted as assistant, division of Traffic, of the United States Railroad Administration, and in January, 1920, he returned to the Cotton Belt as general traffic manager. He occupied the latter position until December, 1929, when he was again appointed assistant to the president. Since March, 1930, Mr. Watson had also held the position of general traffic manager of the Pacific division of the Pickwick stages.

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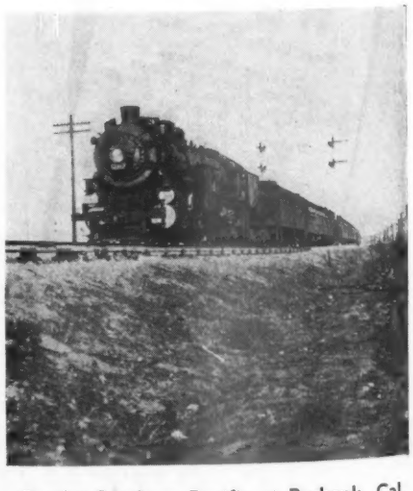

On the Southern Pacific at Burbank, Cal.